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ABSTRACT

Seminar presentations of six leaders in the field of adult education are contained in this monograph: (1) "Adult Learning in the 1970's" by J. R. Kidd, (2) "Innovation in Organizing Learning for Adults--The New Technology" by Burton W. Kreitlow, (3) "The Nature of Continuing Professional Education" by Cyril O. Houle, (4) "Self-Planned Learning and Major Personal Change" by Allen Tough, (5) "Helping Adults to Learn" by Alan B. Knox, and (6) "What Research Says about Adult Learning Potential and about Teaching Older Adults" by Howard McClusky. A reference list is included for each paper. (WL)

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ADULT LEARNING:
ISSUES AND INNOVATIONS

Edited by

Robert M. Smith

July 1976

Information Series No. 8
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Preface

Dr. Robert Smith is eminently qualified to act as editor of this monograph. We already know him through his contributions to adult education, notably as editor of the 1970 Handbook of Adult Education while serving as a university administrator. Since the Fall of 1974, he has been a member of the Faculty of Secondary and Adult Education at Northern Illinois University.

In his introduction, Dr. Smith deftly captures both the quality of each author's personality and the flavor of his presentation. The comprehensive and authoritative nature of these essays in adult education heralds their value to the field. We are grateful to the Adult and Continuing Education Section of the Illinois Office of Education for making it possible to disseminate this monograph more widely to adult educators.

John A. Niemi
Associate Director
ERIC Clearinghouse in Career
Education
July 1976

Introduction

In the Spring of 1975 six outstanding leaders in the field of adult education accepted invitations to lecture and conduct seminars at Northern Illinois University. They were given considerable latitude as to choice of topic and subject matter -- having only to find room under the umbrella of "Issues and Innovations in Adult Learning." The result was a stimulating and challenging experience for several hundred faculty, students and practitioners. The essence of that experience can now be shared with others through the papers published here.

Both the seminars and this publication required the cooperation of many persons and agencies. Among the latter were the Illinois Office of Education, the University of Illinois at Urbana, together with Northern Illinois University's College of Continuing Education, Graduate Colloquium Committee, and Department of Secondary and Adult Education.

In our first essay, Roby Kidd, Canadian and citizen of the world, does what no one can do better -- summarizes and synthesizes a vast body of material in a lively and provocative way. At the same time he conveys a sense of excitement about what is being (and might be) done to forge more useful theories of adult learning and "adults learning." Dr. Kidd has a knack of motivating you to join in the great adventure by choosing one of the unsolved puzzles of adult learning and getting started on it tonight or tomorrow morning.

Burton Kreitlow has hit upon an intriguing way to introduce that formidable area called technology. His personalized historical recapitulation and personal reflections give way to a mind-stretching exercise that gently forces us to confront a problem that will not go away: how can real impact in the education of adults be derived from such technological giants as "satellites?" You cannot read his essay without vowing that the vast potential of "hardware" shall not be wasted — despite our puny efforts thus far.

Cyril Houle, perhaps our greatest generalist, can and has written clearly and helpfully about many aspects of our field -- military programs, community development, program design, participation, and non-traditional study, for example. But one gets the feeling that continuing professional education must be a favorite of Dr. Houle's. At any rate, there is no area in which he seems more at home and writes quite so effortlessly. His essay can safely be called a model for introducing the readers to a complex "sub-field" of adult education -- a sub-field, incidentally, that is quite possibly the fastest growing of them all.

We probably should have said the fastest growing of the institutionally based areas of adult education. For Allen Tough has demonstrated, with world-wide repercussions, that self-directed learning is a phenomenon so extensive and so pervasive as to cause us to see the organized activities of adult education institutions in a whole new perspective. Our field may not have been so renewed by a school of thought or line of inquiry since group dynamics carried almost all before it in the fifties. In Tough's essay we get some fascinating asides and background information concerning his pivotal research in self-planned learning, together with a look at the specific kind of learning project to which he has lately turned his attention.

Alan Knox writes for those "who have some experience helping adults to learn" in order to present "ideas that may contribute to a more effective helping relationship." He takes a great amount of research dealing with the facilitation of adult learning and systematizes it in a most useful fashion while providing ample guidance for those who wish to turn to his sources. You will probably wish to read this essay more than once in order to take full advantage of the remarkable amount of information it contains.

In the final essay Howard McClusky dexterously combines his encyclopaedic knowledge of the psychology of adults and the focus of his recent years (educational gerontology) to bring us up to date in both areas. His historical approach to the former gains special piquancy with the knowledge that his professional career spans many of the turning-points in research described. Those who have heard Professor McClusky urge an audience to avoid underestimating the learning potential of the older person will not soon forget it.

All of these writers are continuing learners. They practice what they profess. Howard McClusky scarcely broke stride when he retired. Every time one talks to Roby Kidd, he's off to a remote corner of the world to try to learn something or to organize something. Cy Houle has lately turned his inquiring mind to higher education and its relationships with adult and continuing education. Alan Knox is excited about continuing professional education and about local learning exchanges. Burton Kreitlow's topic here is one of his latest interests along with adult basic education. And Allen Tough refuses to be confined to the area where his early success is the envy of his peers, and immerses himself in a variety of experimental learning methodologies. So, in addition to their writings, the lives of these adult educators can instruct those of us who come in contact with them.

Robert M. Smith

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I. ADULT LEARNING IN THE 1970's

J. R. Kidd

Let me start with an anomaly. During the 1960's young and older people in about 40 countries began, or continued to ingest, or smoke, or inject into the blood stream, certain drugs or chemicals with the purpose of obtaining pleasure, or escaping from reality, or expanding their consciousness. The effect on public attention was electric, almost it seemed catastrophic -- millions of pages of books and journals, thousands of hours on film and television, legislative action in hundreds of commissions and assemblies and the incarceration of thousands of people, not a few to be executed. Of all that happened in the eventful decade nothing else caused more talk. But, serious though it was, those most involved numbered a few tens of thousands.

Meanwhile, during the same 1960's, hundreds of millions of youth and men and women in at least 150 countries embarked on an activity with the purpose of growth and development, or improvement in health and productivity, or resisting or eliminating boredom, or for spiritual adventure and the expansion of consciousness. This phenomenon -- adult learning -- this extraordinary activity in which the vast majority of the human race took part, exceeded in dimension and significance the first by a hundred or a thousand times -- but it rarely drew comment except in a handful of specialized journals.

Nevertheless, adult education will continue to dominate in the 1970's as it did in the past decade. During the 1960's we lived through a decade of discord, or in W.H. Auden's phrase, in the "suburb of dissent:"

> And where shall we find shelter
> For joy or mere content?
> When little was left standing
> But the suburb of dissent?

Every form of establishment was under censure or under attack, every field of education was ambushed by critics loud and shrill -- except adult education.

All through the 1970's, we can expect a further enlargement of adult learning -- in pace and breadth and depth. Some of the reasons:

Demography -- In most countries the cohorts of older persons are very much on the increase while in many countries the total numbers of children will be reduced either in proportional or in absolute terms.

Technology -- For millions of people there is or will be more rele[illegible] time because of technological changes. The improvement of certain educational technologies will also provide significant new forms of learning -- for example, Indian villages in the north will be linked and able to talk with each other by satellite.

Taste and life-style -- The hopes and aspirations and tastes and expectations for most, or at least many people, are already resulting in more clients for learning, with stronger motivation and already possessing more learning skills.

Economics -- The economics of most countries are such that widespread efforts to educate, train and retrain will be urgently needed.

Survival and preservation needs -- If human beings are to survive such real and palpable threats as war, famine, tensions between groups, overpopulation, and destruction of the environment, it will happen in part because hundreds of millions of people will have learned to live and relate themselves differently to their environment and to other people.

The sum of these needs and opportunities is that the 1970's will be a decade of adult learning of such complexity and advance that it may be linked to the growth of the arts during the "Flowering of New England," or of the arts, exploration and statecraft in Old England at the time of the first Elizabeth, or in its range and complexity with the Renaissance Era.

Just before his death, Abraham Maslow said: "We are witnessing a great change in thought, the creation of a new image of man and society and of religion and science. This is not an improvement of something: it is a real change in direction altogether. It is as if we had been going north and are now going south instead." The changes in the direction man is travelling are no more extreme than changes in theory and practice of adult learning.

In the 1970's we will, I am convinced, move far along a trail that I will characterize by the term Mathetics (which I will explain in a moment). We will accept the fact that most good learning will be at the initiative of and under the direction of the learner and that the loci of much learning will not be within special institutions called colleges or universities -- even though enrollment in these places will continue to grow -- but in the many milieus frequented by learners -- their homes and workplaces, and shopping centers and recreational facilities. There will be general acceptance of the fact of recurrent education, with rhythm of formal organized study interspersed with fulltime attention to work or recreation. Some trends are obvious and unmistakable, other trends may be mixed or appear to move simultaneously in opposite directions. Examples:

·There will be increased utilization of education for preparation and for advancement in a career and also for liberal and humane purposes; for self-expression. There will be some evidence of people motivated for non-vocational purposes, but the work ethic may be even stronger, not weaker, for many.

·Adult learners will be searching diligently for the meaning of life and also for practical skills for managing their day-to-day existence.

·Adult learners will be seeking solitude for contemplation and the release of pressure and will also be engaged in social action and will learn deeply from the engagement.

·Adult learners will band together to fight against the forces that result in alienation and segregation but also to fight against the invasion of privacy.

Mathetics

Do you resent the frequency with which in education new terms are coined and new slogans or new fads pushed forward which tend to dilute understanding and impede communication? It is not so much new wine in old bottles. Much of what has been happening is no more than new labels pasted on old bottles containing the same mouthwash or stale deodorant.

Despite the risk, may I introduce you to a relatively new term -- Mathetics. Notice -- MATHETICS -- not Mathematics -- I am not being careless with spelling. The concept is not brand new. There is already an Institute of Mathetics in Italy, and the root of the term is from ancient Greek "Matheins -- roughly equivalent to learning." It is a term that is beginning to have increasing meaning at the Department of Adult Education at O.I.S.E. from which I come.

Why waste time on a new term?

First of all, the concept is very significant in both its meaning and application. We have no quarrel with friends such as Howard McClusky and Malcolm Knowles or colleagues in Yugoslavia who put their stress on the difference between the education of children and the education of men and women. However, that is not where we place our stress. We appreciate that there are differences and yet we tend to play up underlying continuities throughout the lifespan rather than make much of the distinction between pedagogy, or the science of the behavior of one who is teaching, and andragogy, which is, I suppose, the science of behavior of the person who is teaching adults. The distinction we find most meaningful is between pedagogy or andragogy and mathetics which is the science of behavior of people learning.

We believe that a shift of attention from teaching to learning does have and will have profound consequences. Moreover, we do not equate learning with something professed or possessed by the educational psychologists. It is no slight or criticism of psychology to point out that psychologists don't own learning theory. The disciplines that can and will contribute are many -- sociology, for example, and philosophy, history and political science, anthropology, and law and comparative religion. All of these disciplines are members of the family of humanities and social sciences. However, as C.O. Houle has stated more than once -- the major contributions to learning in the 1970's may come from the natural sciences, not the social sciences -- from chemistry, and physiology, and biology and nutrition and brain research. Moreover, many of the insights for adult learning are coming from practice, not from scholarly disciplines or research -- fields such as the diffusion of innovations, new applications of technology and media of communication, and applications of therapies. One of the features of the term Mathetics is that it is new enough, and commodious enough, to offer a home for all that is significant for adult learning.

Accordingly, the new-old term Mathetics encompasses much that is established and accepted as well as what is innovative and undergoing trial. Fortunately there is a good deal on which agreement has been reached about learning principles and practice.

To begin, I must point out that we are still rather ignorant about the learning of adults. We don't know nearly enough. We aren't sure why it is that some people will put themselves out, will extend themselves and their powers, will try, will take risks. We know that others are resistant, are wary, are slow to start and quick to give up. We give the latter names — they are apathetic, or lazy, or not well-motivated. But we are better at name-calling than we are at understanding or helping such people become effective learners.

What do we know about learning? In some ways it is like electricity. Everyone knows the old joke about that. "Tell me about electricity," said the professor. "I knew about it," said the student, "but I forgot." "My God," said the professor, "the only man who ever knew about electricity has forgot."

But, like electricity, we do know something about how learning happens, under what conditions it flows and moves; we can use its power.

We do know that learning means change; that learning is active, not passive. The learner opens up himself, he stretches himself, he reaches out, he incorporates new experience, he expresses or unfolds what is latent within him. The critical part of the process is how the learner is aided to embark in this active, growing, changing, painful or exhilarating experience we call learning.

We know that learning is a profoundly human activity. There is some parallel here with the practice of medicine. Most of what has been written about medicine describes how certain chemicals or herbs, and certain techniques, may be used to heal the body. Yet the most important fact about the living body is that it is health-seeking -- that its forces reach out toward health and healing. It seems to be very much the same with learning. Human beings seem to seek after learning; learning seems to be the condition of a healthy organism. The main task is to provide the climate and atmosphere and freedom and stimulus and self-confidence and self-discipline in which learning is promoted.

One of the reasons that our understanding about adult learning is much less than it could have been is that the study of the problems has rarely been organized in any effective way. Learning theory is an applied science, much like medicine. Just as medical science derives from chemistry, physics, and biology, learning theory for adults derives from many disciplines. Notice that there are at least two problems. First there is the problem of complexity. How can you derive useful theory from several disciplines and many fields of practice? It is an extremely difficult task, so we sometimes have sought an easy way out by ignoring theory, and saying how practical, how pragmatic we are, or by grasping at some relatively simple notion like the "conditioned reflex." Another kind of problem that we have not fully appreciated is that we do operate in an applied field and cannot take over easily what is learned in some antiseptic environment or psychological laboratory. Most psychologists who have studied learning, in order to maintain "scientific rigor," have chosen to observe rats or pigeons or dolphins under exacting laboratory conditions. Sometimes we have attempted to apply directly their findings without realizing that this is not possible, that the study of the learning of men and women must be carried out under the actual conditions where men and women are learning. Men who know all about rats can help us with method and share their attitudes toward truth, but they cannot tell us what we need to know, what we ourselves must help to find out, about the real, wonderful, overpoweringly complex world where men and women are learning.

Not content with existent difficulties, we have added more. Our emphasis on youth, the fabrication of a special youth cult or youth culture can increase the difficulties and injure the self-esteem of an older person. It may exaggerate, at least in his mind, the disabilities that come with aging. There are many ways, too, in which we penalize the failure of adults.

However, let us turn to some of those insights about which there is now enough evidence, or agreement, so that we can employ them as a foundation for our programs. We can introduce or perhaps summarize much of what has been learned about learning by referring to the Three R's of adult education -- relevancy, relationship or relatedness, and responsibility. Relevancy -- No adult will deeply absorb himself in study unless he sees, unless he feels, that the subject is part of his life and destiny. The study must be close enough to him to enter into his living-room, or den, or kitchen, or bedroom. He may waste time, or kill time with some activities, but without relevance there will not be the engagement that constitutes genuine learning. A child expects to learn, more or less, what he is told to learn; the adult employs a rigorous test of relevancy. Relationship -- No knowledge or skill or attitude is discrete; the adult wants to understand how it relates to his experience, to what he is, to what he knows. He perceives in patterns. For example: four single lines may be perceived not as separate lines but as a square. Six juxtaposed circles may be perceived as groups of hunters, as a bear, as a giant dipper. Responsibility -- Over one of the gates at Harvard University are the words -- "Enter that ye may learn, depart to serve your country." In a sense this is true of all learning, that one seeking it must act, and acting he has assumed already some obligation at least to question, to try to understand, or to do something about the consequence of the study. Many adults are engaged during these years in social action -- for better housing or a safe environment -- and these activities can be the location of rich learning.

Frequently, we are asked: "What about individual differences and the incapacity of some men and women to learn very much? What about the decline that comes with growing older?"

There are great differences between people. One man can be more able than another in discriminating pitch in the order of 500 to 1. For other capacities the range may only be a fraction of that, but still significant. It is important to know that for any kind of capacity there is an elite and there are many less able. But it may be even more important to understand that in hardly any respect, if at all, has any man achieved his best, and that in the poorest of us are untapped possibilities. In his book Adult Learning, Thorndike said bluntly more than forty years ago, "almost any adult can learn almost anything he needs to learn," and no evidence has since been uncovered to dispute this conclusion.

Before Thorndike, it was commonly believed that optimum years for learning anything were eighteen to twenty-two. His research caused him to put the date "of no return" at about forty-five years. Evidence is now convincing that no serious decline in learning capacity need occur before 75, and if good health remains, to some later date. Respecting adult learning, chronological age is not a particularly important factor.

There is gradual decline in strength, marked decline in hearing, and extreme decline in eyesight as one gets older. Decline is the normal experience of all of us. And we slow up (or is it slow down). To the extent that it is dependent upon speed and reaction time, upon bulging biceps, or upon 20/20 vision or superb hearing, learning is affected by age. But for learning most things that are important to most of us, dependence upon strength and senses does not exist. Moreover, there are ways to overcome most of the disabilities associated with impairment.

With aging there is sometimes resistance to change. But not always. It seems to be more a function of one's personality and one's expectations and aspirations than of birthdays. An older person may be more hesitant to change, if he perceives it as threatening, than a younger person. After all, he has more at stake. It does seem clear that interests are established with greater ease earlier rather than later. If you hope that a man of sixty will paint, read, play music or engage in politics, it would be well to ensure that he had some experience of these activities, with satisfaction, before he was twenty-five.

Adults are not just older than children; they have much more experience, and in consequence, feelings play an even larger part than in the learning of children. Gardner Murphy wrote: "The adult has not fewer but more emotional associations with factual material than do children although we usually assume that he has less, because the devices of control are more elaborate and better covered in the adult."

The constellation of feelings associated with love (respect, admiration, generosity, sympathy, friendliness, encouragement) are of constant influence on learning. They are much more powerful than constellations associated with rage and fear. The first leads to calm, serenity, hope, joyousness, confidence. To the second and third the response is anxiety, withdrawal, despair, greed, hate. Hate and fear may lead to learning but the chief thing the subject learns is to avoid such an experience again. Carlyle wrote: "Love is ever the beginning of knowledge as fire is of light." There is no finding in educational research that is in collision with that view.

We say adults are different from children? Of course. And they are different from other adults and different from themselves at successive stages in their own lives. I am not the man I was ten years ago. And I don't regret it, even the losses. Literally, every single cell in my body has been rebuilt and replaced in that time. Literally, I am now the product of many fascinating, demeaning, agonizing, exhilarating experiences. So are you.

All through life you and I will be playing different roles. Think of the changes in a man's life -- in his work, in the family into which he was born, in the family that he establishes, in his community, in his leisure interests. Just think of the difference in the role of a man who has gone every day to the same factory or office on the day that he retires. The role changes for women are no less varied — preparing for and starting out on a career, coming to terms with a husband and children, her position in organizations and in the community, returning to or taking up a new career, relationships with aging parents. Every month, every day, brings new needs for learning.

Adults have to learn new skills. Of course, almost any employed person must learn new job competencies; we are all familiar with these dramatic job changes. At the moment I am getting help from a 19-year-old girl who is already something of an expert with computers, while I am a dunce. All of us must come to terms, at least in part, with innovations in automobiles and home gadgets, and the use of credit, or new values related to the home or religion or morality or sex. We have all been "running to keep up" with change. Will the pace decrease or quicken? It is almost certain that it will accelerate, at least during our lifetime.

Some of these changes we make are relatively simple. I am not, of course, suggesting that we become resigned to all change, or adopt the stance that all change is either inevitable or desirable. That is as cowardly as it is stupid. Some changes are to be resisted like the cancerous cells they are. But how do we learn to discriminate; how do we learn perspective; how, if you will allow the word, how do we learn wisdom?

Many people, of all ages, have from time to time, or permanently, stood aside from life. For example: There are over 100,000 men and women in my province who have chosen, more or less permanently, to live with and for alcohol, rather than with and for human beings. Can we help ourselves and help others dare to engage fully in life? There is ample evidence not only that this can be done, but that there are deep human forces and powers within us that can be counted on. Karen Horney, from vast clinical experience, has said: "The ultimate driving force is the person's unrelenting will to come to grips with himself, a wish to grow and leave nothing untouched that prevents growth." And Carl Rogers: "I have yet to find the individual who, when he examines his situation deeply, and feels that he perceives it clearly, deliberately chooses to have the integrated direction of himself undertaken by another. When all the elements are clearly perceived, the balance seems invariably in the direction of the painful but ultimately rewarding path of self-actualization and growth."

The Self-Learner Or Self-Tutor

My colleague, Allen Tough, and several associates are engaged in a long-range study about the man or woman who continues to learn, who alone determines what he or she will learn and sets up a procedure for accomplishing his or her goal. Does he or she enroll in a course or use a library? What kind of help does the individual seek? How can one be aided to carry out this transaction with efficiency and encouraged to seek further self-education? Tough has found a great many subjects who are engaged in significant tasks of self-learning and believes that thousands, perhaps millions, of people can be aided to improve their learning efficiency.

If you are doubtful about this, go to some place where adults are taking part in self-chosen activities that are meaningful to them. The next time you go to a horserace, if you ever do, forget about the horses for at least one race and watch the people. You will see hundreds of them all around you who are engaged in prodigious efforts to master vast amounts of information about the genealogy and history and performance of men and animals as well as attempts to solve intricate mathematical problems that would daunt the most sophisticated computer. Have you ever met a man who had recently fallen in love and noted how much he has learned about the loved one? Or someone who has found religion, or become involved as a candidate in politics? These matters have been established and can be counted on; but the most exciting days of discovery and testing of theory and innovations are just ahead.

Theoretical Formulations Appropriate For Adult Learning

There are many weaknesses, ambiguities, and much lack of clarity about theory and practice of adult education but rarely does it err on the side of constricting the learner and putting him into an intellectual straight jacket. It is a wide open field, favoring initiative. There is a story of one young man who rebelled against intellectual constraints at his university. He had been given zero on a test; he protested he should have been given 100, and another professor was called in to adjudicate:

> "I went to my colleague's office and read the examination question, which was, 'Show how it is possible to determine the height of a tall building with the aid of a barometer.' The student's answer was, 'Take the barometer to the top of the building, attach a long rope to it, lower the barometer to the street, and then bring it up, measuring the length of the rope. The length of the rope is the height of the building.' I pointed out that the student really had a strong case for full credit, since he had answered the question completely and correctly. On the other hand, if full credit were given, it could well contribute to a high grade for the student in his physics course. A high grade is supposed to certify competence in physics and the answer did not confirm this.
>
> "I suggested that the test be given again. I was not surprised that my colleague agreed, but I was surprised that the student did. I gave the student six minutes to answer the question, with the warning that his answer should show some knowledge of physics. At the end of five minutes he had not written anything. I asked if he wished to give up, but he said no. He had

many answers to this problem; he was just thinking of the best one. I excused myself for interrupting him, and asked him to please go on. In the next minute, he dashed off his answer. It was: 'Take the barometer to the top of the building and lean over the edge of the roof. Drop the barometer, timing its fall with a stopwatch. Then, using the formula S = 1/2 at 2, calculate the height of the building.'

"At this point, I asked my colleague if he would give up. He conceded. In leaving my colleague's office, I recalled that the student said he had other answers to the problem, so I asked him what they were. 'Oh, yes,' said the student. 'There are many ways of getting the height of a tall building with the aid of a barometer. For example, you could take the barometer out on a sunny day and measure the height of the barometer, the length of its shadow, and the length of the shadow of the building, and by the use of simple proportion, determine the height of the building.' 'Fine,' I said. 'And the others?' 'There is a very basic measurement method that you will like. In this method, you take the barometer and begin to walk up the stairs. As you climb the stairs, you mark off the length of the barometer along the wall. You then count the number of marks, and this will give you the height of the building in barometer units. A very direct method. Of course, if you want a more sophisticated method, you can tie the barometer to the end of a string, swing it as a pendulum, and determine the value of "g" at the street level and at the top of the building. From the difference between the two values of "g", the height of the building can, in principle, be calculated.'

"He added that there are many other ways of solving the problem. 'Probably the best,' he said, 'is to take the barometer to the basement and knock on the superintendent's door. When the superintendent answers, you speak to him as follows: 'Mr. Superintendent, here I have a fine barometer. If you will tell the height of this building, I will give you this barometer.' At this point, I asked the student if he really didn't know the answer to the problem. He admitted that he did, but that he was fed up with college instructors trying to teach him how to think and to use 'scientific methods' instead of showing him the structure of the subject matter."

Theoretical Formulations

Under the term Mathetics we can identify, state and test certain theoretical formulations that provide us with valuable explanations about how and why people learn. In earlier periods, adult educationists borrowed their theoretical clothes largely from psychologists who had studied the behavior of rats, apes or pigeons, or who had worked with young children. It was often an example of the Biblical reference of the child being father to man.

Now some formulations, derived from many disciplines and fields, more applicable to older learners, can be utilized and tested. Here are seven examples, to illustrate what is possible and stimulate the identification of others.

1. *A formulation based on humanistic or third force psychology* -- with the contributions of Maslow, Rogers, Perls, Berne, and others. There are, of course, quite substantial differences in outlook and emphasis among the men I have named but each was comfortable with the others and would be found in agreement on a number of concerns -- for example, that learning should be experiential, that it should help people confront problems and that the primary goal is the discovery of personal meaning. If this were 1960, it would be necessary to say more, but the humanists have made extraordinary gains in the last fifteen years and in many departments of adult education they are as sovereign today as would have been Thorndike and the connectionists in the 1920's and 1930's.

2. *Aesthetic Perspectives*. The importance of aesthetics in learning is as old as man's history, and as deeply meaningful as humanistic ideas. Yet there may be surprise at its inclusion here. Probably much more will be known and said about this formulation before 1980. Theorists in all ages have agreed that art is central and crucial in man's development. These views recently have been summarized by Glen Eyford:

> The most commonly identified function of myth, metaphor and symbol--and of art generally--is that of imposing meaning or order upon the internal and external world of man. They are a means of providing understanding and insight into the flux and chaos of human experience. In addition, myth serves to provide standards or models to guide man in the adventure of living. In accomplishing these purposes, they connect man with primal sources of energy through their ability to present aspects of reality in harmonious--and harmonizing--forms. They make it possible for man to quench what has been termed his "ontological thirst," his instinctive need or craving to make sense out of his world, his thoughts, his feelings.

Northrop Frye describes this instinct for meaning as man's "motive for metaphor." Through the use of metaphor and symbol, and all the stuff of art, man constantly makes and remakes his myths, which in turn, make and remake man. Through the instrumentality of myth, metaphor and symbol, man identifies himself with various aspects of the world around him, creating connection, meaning, and significance in the process. Art deals with the alternative models of experience and in so doing has no need to be factual, logical or scientific, but can function in the realm of pure imagination. Art is no less real or important because it operates in this realm; in fact, it can be claimed that this realm of the imagination or the spirit is the essence of man which needs to be stimulated and nourished through aesthetic activities. Myth, metaphor and symbol are rooted to man's basic nature, in his "motive" for metaphor: and they both appeal to this instinct and arise from it. Art works because it speaks to a basic need in man for identification with the world. It aids man in his relatedness to that which he finds around him and within him. Art continually reminds man of his essential humanity, especially in times of confusion and impending chaos. Art coordinates, integrates and synthesizes ideas and makes it possible for man to rediscover his true nature. It does not offer specific solutions to social problems but rather brings back to man a sense of balance and perspective, preventing him from going too far in any one direction.

3. Operant Approaches. It is a curious fact that, at least in my classes, many students acknowledge that B.F. Skinner has been and is still extremely influential, and that operant principles are widely used in adult education, adult training and correctional work, and yet will unwillingly or grudgingly give any serious attention to operant principles or practices. They may themselves practice behavior modification, they may constantly be searching for acceptable means to reinforce meaningful behavior, but they are critical and resentful of attention given to Skinner.

The notion that some kinds of behavior are controlled or at least are affected by the consequences has often been demonstrated and has been applied in numerous institutions and programs, sometimes in direct and sometimes in subtle ways. The purpose is to create, strengthen and maintain new behaviors and skills, and for some purposes operant modes seem to work very well. There are, of course, some ethical problems, as there are with any learning formulation. Because the operant approaches have often been demonstrated empirically, they are generally likened to, or conceptualized as, a science or even a technology, rather than as an art of teaching. Under operant principles, teaching is looked upon as making arrangements to reinforce a process by which people learn and teachers are regarded as persons who manipulate the environment and the learners. To many people this is acceptable, but to others it sounds like Orwell's 1984, and we are reminded that the date in that frightening novel is less than a decade away.

In my own view, adult educationists should make a hard-headed and careful study of operant perspectives, noting research, development and application of at least three identifiable kinds:

- problem-oriented operant research
- methods of operant instruction
- processes of operant learning

Such a scrutiny need not lead an adult educationist to embrace Skinner, or all operant principles, or to jettison his own values. It is possible, of course, that he may find support for much that he already cherishes, for example that the most effective way to learn is not to be a passive recipient of information but for the learner to proceed actively at his own rate, using materials that have been organized into digestible modules or units. My hunch is that all of us do, and all of us will employ operant approaches for many significant acts of learning and that we should do so with as much understanding as possible.

4. Information Processing. Most of the educational theorists who are primarily concerned with cognitive learning have stressed the processing of information -- selection, preparation, spacing, repetition, eliminating information over-load, and so forth. There are signal differences between Piaget and Bruner and Ausubel, as well as others -- over "discovery" for one thing -- but they are all concerned with the same order of problems, and what they are saying and doing has continuing significance for many adults enrolled in such institutions as colleges and universities.

David Ausubel may be taken as an example; he stresses "meaningful verbal learning" and he says that it includes two basic functions:

perception and cognition. "Perception involves an immediate context of awareness before the intervention of ... complex cognitive processes. Cognition involves such processes as relating the new material to relevant aspects of existing cognitive structure."

The full implications of this definition may not be immediately apparent. The learner first becomes aware of selected features of the environment or of a learning situation -- he cannot attend to all the information in the situation; there is too much of it. There is first selection based on relevancy to the learner's purposes or needs. The information is stored selectively -- it is coded and transformed for later retrieval. New information may be linked to concepts already known without changing them, or in order to bring about refinements in the established concept or even to result in drastic changes in the concept.

One of the major differences between a child learning and an adult learning lies in the blocks or assemblies of experience possessed by the adult. For the child, each new concept must usually be built from scratch. The achievement of adult understanding takes place slowly as one's knowledge is gradually integrated with the knowledge already acquired. To put it another way, the adult must unlearn or modify what he knows and this is often the hardest part.

These approaches to learning are of considerable consequence to many adult educationists. However, there has not been the systematic application that is necessary. There are several key concepts to be tested or applied. One is "cognitive motivation." Another is the idea of a thirst or a quest for knowledge -- "epistemic curiousity." There is a body of experience bearing on individual differences; there are principles for ordering instructional materials; there is experience (from Robert Gagne and others) respecting knowledge structure that affects learner readiness, as well as the effect of information processing on memory.

5. Motivation via expectation or expectancy theory. There are many theories and explanations of motivation: We are here concerned with the power over action through expectation. These concepts and theories are much more complex than operant conditioning: The drives that result in action go far beyond simple reinforcement. Names of the theorists who have contributed are legion: Terman, Lewin, McClelland, Hershberg,

and Professor A. Lozanov of Bulgaria. The assumption of most of these men is that performance in learning is affected by choices made by the learner -- choosing from among many different potential action alternatives or performance levels that action, or that level, which (on the basis of his beliefs and feelings) is perceived by him to be the most appropriate.

This formulation, simple enough in outline, requires articulation in greater depth for application to adult education. Eventually it may encompass such fascinating matters as the following:

The work of McClelland (and others) that demonstrates how the expectation of achievement on the part of students and teachers affects the achievement of the learner.

The extraordinary achievement of certain small groups, or associations of individuals who seem to possess no particular advantage except an enlarged expectancy.

The theories of Paulo Freire, which go under the term conscientizacion and refer to learners coming to believe that they can affect radically the quality of life in their society.

Evidence from cross-cultural studies about the linking of successful behavior with expectation.

Application of hypnosis or auto-hypnosis, or suggestion and suggestology (Lozanov) to teaching as well as to healing various ailments of the body (faith-healing).

Most theories that deal with expectation are still fragmentary, over-simple and confusing. Yet, for many of the problems that confront and intimidate people, and for most adults who have suffered defeat and failure, these formulations renew hope. It is fascinating that such characteristics as faith, hope and charity, or self-confidence and trust, are now being employed in such positive and productive ways -- after decades of over-emphasis on debunking and hypercritical analysis, sometimes leading to apathy and cynicism.

6. Neo-Instincts. In the 1920's, when I was still in elementary school, instinct theories held sway in education along with connectionism and Pavlovian conditioning. More and more claims were being made that certain forms of behavior and learning were directed by a specific instinct until the total number of "observed" instincts mounted to the

absurd total of about 2,000, whereupon the vast bubble of instinct theory used to explain human behavior burst and was blown away by its own gasses.

During the last decade, neo-instinct theories have begun to surface and to obtain many adherents (examples: Lorenz and others concerned with aggression and Ardrey and others emphasizing space imperatives). The meeting ground for these theorists is the belief that homo sapiens, an animal, has inherited (as have other animals) certain patterns of response to his environment and to other creatures and that these inborn patterns or tendencies govern what he will learn and how he will behave.

There are also those who have returned to earlier theories, or myths, postulating that certain kinds of capacity, particularly intellectual capacity, are linked to racial origins, or even to skin pigment, and are also inherited. I believe that any such claims should be examined fearlessly for whatever truth there may be in them. However, from my own study, and many experiences in several countries, I find no evidence whatsoever to support a view that intellectual capacities are linked with racial groupings or even that any human being inherits much more than a set of capacities and tendencies which are substantially modifiable. What a human being can and will learn is of equal or greater significance than with what he is endowed at birth.

7. Theoretical formulations based on the natural sciences. Over the next decade there may be gains for adult learners derived from the natural sciences in greater measure than from the social sciences. There is no single theoretical formulation yet advanced that can encompass all of the matters of importance, but one or more may soon be forthcoming. These theories will deal with whole ranges of phenomena -- for example the effect of certain chemicals in expanding the consciousness and on learning, the significance of diet and the effect of nutrition on rates of metabolism and oxidation, which in turn result in avoiding or enhancing emotional stress and learning potential and the exciting and frightening marvels being discovered from brain research. These and other findings have profound meaning for adult learning, yet most of them we ignore, or neglect.

Let me take a single simple example. One colleague, a nutritionist, claims that in any school or college, if a simple routine test of blood chemistry is given there will be revealed deficiencies that are relatively easily remedied which may lead to the marked improvement in the learning of as many as fifteen to twenty per cent of all the adult students. I have no reason to doubt her data or her conclusions. Adult educationists must learn the language of the natural sciences, or at least find colleagues who can help monitor on a continuing basis, what is applicable to adult education from these many scientific inquiries.

These are seven formulations, some of which at the present state of our knowledge, may seem to conflict in part, or may not even seem to interact. Yet, each may be useful in and for some important learning purpose or function. Is it possible to achieve greater coherence, to reach some synthesis? Some have said that there is little point in attempting to achieve an integrated theory; they argue that we should enjoy our multiplicity of concepts and practices, opt for pluralism and practice tolerance for differences. Others believe that some integration is possible and have made some attempts to achieve it. On my own account, I have made no such effort. While I would welcome attempts at greater coherence, I would be content facing the 1970's and 1980's if we continue to observe and test all theories that seem appropriate as well as scores of fields of practice.

I considered the possibility of including the current interest of Alan Knox (and scholars in other countries) in developing models based on the notion of lifetime learning. Knox's paper on "Lifelong Self Directed Education," in Fostering the Growing Need to Learn, is especially good. Merely keeping up with all significant theoretical work will not be easy. Yet there are more and more departments of adult education in the universities and we all have colleagues in associated disciplines. What we do need are some strategies for sharing the tasks, for monitoring and testing results from other fields as well as designing and mounting research by ourselves.

Fields of Application

I now return to the point that much, perhaps most, of what is being learned about learning arises not from research but from some practical fields of application. There are a number of promising fields, some of them familiar and others receiving new or renewed emphasis. Again, only a few examples will be cited, simply identifying the fields, with no attempt to explore the full implications.

1. Bio-feedback. One of the more fascinating fields at present is the application of bio-feedback devices to the learning process. There is nothing new about some bio-feedback devices — a thermometer for example. More sensitive devices can now inform us about our blood pressure, rate of heart beat, or relative state of consciousness. With this information, one can learn how to cope with stress or to relax and perform better in such activities as writing a university examination, or attempting a critical exercise of digital dexterity, or learning to cope with one's own anger or outrage. Knowing about one's feelings is the first step in designing behavior to cope with the situation.

2. Learning associated with small groups. So much has been said and done about theory and practice of small groups that I will simply identify the area as one of continuing growth and importance.

3. Learning associated with communications media. Again, there has been no lack of applications to learning theory and practice that derive from new educational technologies. In the 1970's the technologies that will have critical impact on learning will increase, and this in turn makes it all the more essential that the adult educationist makes his own contribution, the one far too often ignored -- namely of utilizing the media for effective learning.

4. Application of certain therapies. It is not customary to list a therapeutic session as an educational activity, although any therapy will work only as the person in need learns how to eliminate the causes of breakdown that brought him to therapy or learns how to handle the stress in more productive ways. Therapy is learning. In addition, some of the therapies have contributed insights, methods and techniques that were first applied to those "in emotional need" but which may have wider application. Transactional analysis is one that seems to be contributing insights, analyses and practices usable in counseling and other forms of adult education.

5. Learning styles and learning skills -- particularly cognition learning style. As the result of empirical research, some characteristic

styles of learning have been identified. It is probable that some persons will learn more productively with one style than another, and that instead of making it necessary for every adult to adopt an identical style, learners will be encouraged to try out and find styles that suit them. Observation of learning skills, in relation to learning styles is another current activity that may hold some promise. It is interesting to note that, while one of the foremost learning skills is listening, when a search was made of all research about adult learning over a five year span, the skill of listening was only referred to in four studies out of many thousand!

6. Learning associated with old age. This is a field of work now obtaining great resources and from which results in theory and practice may be considerable.

7. Learning related to death and dying. During the 1960's it became appropriate (and often seemed almost mandatory) to speak about any behavior linked to sex; but death and dying were still on the prohibited list. This is no longer true, and activities related to the recognition, acceptance and celebration of dying are much more frequent and are beginning to provide insights about learning that are deep and precious.

What does this mean for research and development in adult education? It certainly means that we need a strategy whereby the increasing resources of adult educationists who are concerned about research can be shared in the common adventure. There are many needs requiring many kinds of talent. Some of us can be examining practice and testing out the formulations of others, some can help monitor research of others, some can monitor work in other languages and from other cultures, some can design and carry out new research, some can interpret these findings to our adult students and the general public, some can lobby for laws and changes in the educational environment so that adult learning of the highest quality can be advanced, not impeded. We are all needed.

While we should not be censorious of any theoretical or practical field of learning that may offer truth, there are some formulations and some fields of practice that may warrant special attention. I might cite the humanistic field as one already recognized and appropriated, and the field of aesthetic perspective as promising but not receiving much attention.

At present the greatest progress may result in pursuing research designs that arise from other sources than educational psychology. We may also need to deal with new kinds of questions. For example, when Cyril Houle, Allen Tough and others turned their attention away from the classroom and the teachers, and simply asked learners what was happening to them, results of remarkable consequence began to appear.

With your forebearance, I will mention an approach to research on which we are now engaged that may have important consequences, as an example of possible inquiries for the future.

First Person Learning Analysis

On an experimental basis an investigating team at the Ontario Institute for Studies in Education has developed an approach to learning theory and practice that is eminently suited to contemporary developments in education. The mode is simple and direct--it is the investigation of how, why, when, people learn by analyzing their self-perceptions, self-discoveries and self-revelations. This sounds elementary and obvious; in fact the mode has not heretofore been explored systematically. Based on experimental work over the past two years the investigators have developed an approach and identified sources of data that may have implications for the entire field of education.

In most countries of the world the numbers of older people in organized educational programs has increased several hundred per cent. Yet most learning praxis is based on concepts and methods developed from the observation of children. The most significant innovations in educational practice during the past decade have been individualized learning, self-directed learning, independent learning; all of them in environments outside of schools. Yet most of the formulations of learning theory and practice have derived from the milieu of the classroom. The first person mode that is now being developed arises from, and speaks directly to, education in any environment, education for all ages and education that is self-initiated and self-directed.

Very simply, First Person Learning Analysis is based on the investigation of what learners have written about their own learning. There are some limitations to such data, but the advantages are many:

Not time bound - experience obtained over hundreds of years

Not culture bound - experience obtained from all countries and cultures

Not age bound - experience obtained from the earliest years a person is able to express himself in writing to the end of life

Not domain bound - experience obtained concerning *cognitive*, *psychomotor*, and *affective* domains.

The objective during the first stage of the inquiry was simply to examine critically, but without pre-conceived notions of what to expect, a number of examples of written personal reflections about learning. Examples were: *The Autobiography of Malcolm X*; *The Education of Henry Adams*.

In addition to these well-known examples, personal records were obtained from neo-literates in Canada, the United States, Israel, India and Tanzania. What is fascinating is that the value of the data obtained is not all related to the eminence or the intelligence of the person concerned: material from unknown and poorly educated subjects is extremely valuable.

The analysis, while systematic, was not at first based on any conceptual plan. At the beginning the investigators were determined *not* to settle for any particular forms of analysis; a search was being conducted for appropriate methods as well as content. Provisional application of some organizing concepts came later. The general assumption was that individuals writing about their own learning would display insights but it was not known how valuable these might be or how best to search for material or to organize it for analysis.

However, several propositions began to emerge from the initial exploration:

> The reflections of unknown and neo-literate learners often revealed learning insights as useful as those of persons who had been prepared much more thoroughly. In other words, the range and extent of potential materials may be very large.

Examination of material seems to be much more meaningful when it is based on some conception about learning. (Those conceptions first applied were derived from C.O. Houle and Malcolm Knowles as well as the notion of "peak experience" of Maslow. It does seem likely that there are "peak learning experiences.")

Data from first person records can be used to illuminate or to substantiate, or to question some well-known postulates about learning. For example, the sub-tests employed were planned to ascertain if experiences reported by Tough receive any corroboration.

While many insightful learners have not written memoirs or autobiographies, it is often possible to locate first person records by first ascertaining some of the significant changes in the life of an individual and then seeking out letters, memoranda or other material produced by him at about the same period. In other words, there is a strategy to be followed in locating material.

Many persons now living can be persuaded to prepare reports on their experience in learning. The "learning diary" is a valuable tool in this inquiry, as are self-recorded tapes and some interviews.

Useful records seem to be located in most, if not all, countries if a suitable way can be found to collect them. There are problems of translation but these are not insuperable.

To summarize, there are considerable data from many periods in human history and from all over the world. These data can be collected according to a strategy: Many of the most valuable records have not been widely circulated. However, the data can be analyzed readily with the utilization of learning concepts (developed in adult education or elsewhere) and the data can be used to test many observations and learning formulas.

There are a number of unresolved questions on which cooperative research is needed. Some examples:

What is comprehended by the term motivation?

How does one learn to utilize in full his capacities and resources despite impediments of fear, anger, stress, loss of confidence?

What about the millions of under-educated, and those who have given up or have never tried to use learning for a solution of their problems? How can they be reached?

How can the three domains of learning (psychomotor, cognitive and affective) be effectively linked?

What should be done about ethical problems, such as (1) How to use information that gives power to the teacher or organization? (2) When and where to use information or skills that are not yet fully tested or understood -- or to refuse to use them. (3) What to do about the invasion of privacy through certain technologies and certain modes of adult education?

It is perhaps appropriate to close with a remark by one of the most innovative educationists of our time, the late Mahatma Gandhi of India: "We continue to make new discoveries and inventions in the phenomenal world; must we declare our bankruptcy in the spiritual domain? Must man always be brute first and man after, if at all? If we are to make progress, we must not repeat history, but make new history."

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II. INNOVATION IN ORGANIZING LEARNING FOR ADULTS - THE NEW TECHNOLOGY

Burton W. Kreitlow

I live in a dream world.

In the year 105 AD my name was Ts'ai Lun. I lived in China and invented paper. I believed that paper provided the basis by which the entire world could communicate and it would remove illiteracy if my people were innovative in the use of this new technology.

In the year 1045 my name was Pu Sheng and I created movable type, but the Chinese characters were complex and my hope to remove illiteracy was lost.

In 1440 my name was Johannes Gutenberg. I too invented movable type; it was used and I believed we would become a totally literate world.

In 1550 I lost my quill and found a piece of graphite with which I could write without dipping. And illiteracy would be overcome.

In the 1600's I changed from the hornbook to the use of a chalk board. Here was the solution to the problem of illiteracy.

In 1650 in Germany again, I enclosed the graphite in wood and knew again that illiteracy would be ended.

In 1895 I was Guglielmo Marconi and sent the first radio communication signals. At last we could become a literate world.

In 1919 I listened to the first scheduled radio broadcast on 9XM, which later became the State Station WHA in Wisconsin, and the ultimate in hardware to develop a total education system was available.

In 1920 I was in the Bell Telephone Labs and successfully coordinated sound on records with the motion picture projector. Somehow I passed up being Edison in 1889 when he invented the kinetoscope. Again I believed we had found the ultimate hardware to aid in education.

In 1941 I sat in on the signing of the licensing for the first TV station. Now we were ready. But this is getting very close to home.

In 1950 I knew the Ford Foundation had the answer to total education when they funded the Midwest Program for Airborne Television.

In 1951 I saw UNIVAC come from the engineering brains at the University of Pennsylvania; add this new development to the old and illiteracy would be gone forever.

And again in the early 1960's Computer Assisted Instruction and later the Dutch invention of the cassette audio tape recorder, and now we were ready to take on the education of the world!

But wait -- out of my dream world into reality — in 1975 there are nearly 1 billion illiterate adults in the world.

I live in a real world, and today satellites hover over vast footprints of communication potential and educators have a friend in the skies. There is the new operational hardware that causes our leaders to say, "We have the ultimate scientific know-how to be used to raise the educational level of the world and remove illiteracy forever." But do we have the educational know-how to any greater extent than did those who preceded us?

Can we create educational components to match the high flying creations of scientists? This is the real world of the educator today, and this is the focus of the thinking in this paper.

Permit me some personal reflections concerning what technology can do for education. No one would conclude from the evidence that it hasn't helped. We are not sure how much, but using technology has become a part of our everyday educational behavior.

My real world of teaching began in a one-room school in the 1930's. I used technology and I believed it helped me. There's little research to prove that it did but I think it did. What technology had I learned to use? Chalk board, printed books, maps and charts, flashcards, pencils, paper and a pitch pipe. There were no projectors, slides, 16 mm films, or overhead projectors or phones at that school.

Later, as an extension agent for a College of Agriculture, I used other hardware and filled in the software as best I could — films, slides and even a metal wire tape recorder. Again, I believed it helped but no research tells me how much.

Later, as a university professor, I used other technological advances, trying to fit in software as I moved along. As others before me and since, I became involved in research, some of it to determine whether or not the technology I used really worked. Let me review a series of studies I directed in the 1960's that proved that my use of technology didn't help as much as I believed it had.

Findings from my research on school district reorganization were sought extensively in Wisconsin and elsewhere. It seemed that even with news releases, university bulletins and appearances at community and county meetings I just couldn't keep up with the requests. One logical use of technology in this situation was to prepare a 16 mm film for distribution through our Bureau of Audio Visual Instruction. This was done and used, but always with a nagging doubt about the efficiency of film. The bulletins, the films, and the lectures I gave in person all covered research results coming from the study. Why not check on the outcomes of these three approaches plus the use of the film on television? This we did in a series of studies on lecture, film, television and bulletins running over several years. And what did we find from these studies?

First, no one media favored the other over a number of different learning situations.

Second, the lecture gave the most consistent results among the media used.

Third, when information was presented with the researcher present, whether presented in live lecture, bulletin or film, the results were consistently higher by all three means than if a local person gave the lecture, distributed the bulletin for reading or showed the film. This led to the conclusion that the setting may be more important than the media in transmitting research results.

And fourth, the film is reasonably close to the live lecture in results and thus efficient. Later experience showed that if a local group could not get a live lecturer to address their chosen topic they often changed lecturers and topics.

The last three years I've been dabbling with another bit of technology somewhat related to the use of educational satellites — the Educational Telephone Network as organized at the University of Wisconsin.

Three years ago I offered my first credit class over our telephone network — seven interconnected classrooms from one end of Wisconsin to the other. Others had done it earlier. It was a fiasco for me. The software of Kreitlow and his materials may have found a pattern that was considered effective in a campus classroom, but on the telephone network it went into an agonizing decline. By the third year on the network sufficient adjustments had been made so that the positive student reaction approached that of a campus class. This semester I'm comparing the outcomes of a campus class with the outcomes of an ETN class held last year on identical content and with identical objectives. (Some of this experience is described in the November, 1974, issue of Adult Leadership.)

In undertaking this paper, it was my intention to try to create a setting in which we might think together about the new technology. That's what we'll do now. I'm going to create a problem situation, not too unreal, that may be beyond our joint capabilities to resolve. But let's try.

At this writing, 22,300 miles above the intersection of the equator and 94° west longitude, hangs ATS-6 in stationary orbit. It is the technical hardware from which a group of one year educational experiments is underway. They include projects in Appalachia, the Rocky Mountain States, and Alaska. For these educational projects there are available two color TV channels and four voice channels of broadcast quality. The satellite has available for other uses the capabilities of sending and receiving by telephone, telegraph, radio, TV and facsimile and computer data impulses.

Here's what each experiment is trying to do -- in one year.

APPALACHIA

The Appalachian component of the ATS-6 demonstration is designed to test the validity of linking a local teacher-based network to a resource and coordination center via the satellite and other technologies. The purpose of this system is to provide local school teachers with in-service education for graduate credit and instructional materials in the areas of career education and elementary grade-level reading instruction. Instruction will be provided through a mix of technologies including pre-taped TV; live TV; programs modified in response to feedback from each previous program; audio-based programmed instruction; facsimile-transmitted hard copy; computer-based diagnostics; and computer-managed instruction.

ROCKY MOUNTAIN STATES

The major portion of the educational experiment is scheduled to concentrate on remote areas and emphasize early childhood education and career development. The target audiences are to be composed of individuals with different cultural and ethnic backgrounds, who are either adults involved with preschool children or adolescents with a personal interest in choosing a career. These groups are to represent the urban and rural areas and include reservation-domiciled Indians and migrants. The purpose is to provide educational services to areas which have not been served, or which have been reached inadequately in the past by such services. The media mixes to be used are one-way video, one-way audio/digital; one-way video, two-way audio/digital; two-way video and two-way audio/digital.

ALASKA

The general purpose of the educational portion of the experiment is to determine those communication services which are desirable and will meet the educational needs of the populace. There are to be five experimental areas aimed at determining the value of and problems associated with: 1) providing training and consultation opportunities for teachers in remote areas, and providing children and adults with culturally relevant curriculum and information; 2) providing interactive health education programs to children, adults, and para-professionals; 3) assisting classroom instruction by using a computer-linked teletypewriter; 4) delivering television programming defined to be relevant by the native Alaskan viewers; 5) transmitting real-time public broadcast programming from the lower 48 states to Alaska and vice versa.

Now when all this is done, our technological wizards at ground control will lower the satellite out of its stationary orbit; it will drift east. In twenty or thirty days it will be over Kenya, east of Lake Victoria, where it can give a good footprint to the Indian subcontinent. Here the Indian government will use it for a year.

INDIA

The Indian portion of the experiment has the following primary instructional objectives: 1) contribute to family planning objectives; 2) improve agricultural practices; and 3) contribute to national integration.

The experiment is to involve the broadcasting of instructional television programs to an estimated 4,000 - 5,000 Indian villages. (The languages to be used in this experiment are Hindi, Kashmiri, Bengali, Oriya, Marathi, Gujarati, Tamil and English.) About 2,200 villages are to receive programs from the satellite through community receivers. The receiver will use a ten-foot, inexpensive mesh antenna with a front end converter to change the signal from UHF to VHF, and from FM to AM. The remaining villages are to be provided programs received by earth stations and redistributed to community receivers via VHF conventional transmitters.

So now we have some idea of what can be tried if we educators approach the creativity of the space scientists.

Before going on, let me express my doubts about the value of the four educational experiments just described.

First, one year is too short a time -- five to ten years in one place is more realistic. Second, though the potential of satellite communication may be greatest in sparsely settled and rugged sections of the world, these are not the most appropriate places for testing the educational software. That should be done in areas where users will be critics. Third, only twenty percent of the input in the above experiments is live; eighty percent is canned. This doesn't seem like a ratio that would develop participant involvement, criticism and developmental input. It may be another case of scientific intimidation.

Thus, for our purposes I am going to move ahead a few years, let us say 1980, and provide a satellite and an educational software development problem that you can set your mind to. Let's get the hardware up first.

We'll call it the Educational Technology Satellite 11, or ETS-11, to show that it's the eleventh one and that it's up and ready for use. It was launched with an Air Force Titan III C rocket and is in a stationary orbit. At launch the 3500 pound package looked like Figure 1.

When at location, it unfolded and stretched out to absorb rays from the sun; the antenna opened and all systems worked. It then looked like Figure 2.

Its position was such that it covered the North Central part of the U.S.A. as in Figure 3. It had a footprint that gave positive and efficient communication potentials to the heartland of North American universities. (Figure 3A)

You will note that this footprint stretches from Ohio State University to the University of Manitoba, covering a band 300 miles wide for that distance and including one of the great population and university and college complexes in the United States. Here is a place to test whether or not the educational community is competent enough to use positively what space scientists have produced.

For starters, let's assume that a consortium of foundations, the U.S. Government, and major universities have reserved and agreed to finance ETS-11 for use over a five to ten year period (depending on the life of ETS-11). The hardware is extremely costly, but it's up and ready to go. Unless we can design and use learning environments in relation to ETS-11, we must conclude that this piece of new technology is beyond our professional capability. It may be better to do nothing than to waste both hardware and software.

Reserved for our use are the following:

1. Five color TV channels (receiving and sending)
2. Five broadcast voice channels (receiving and sending)
3. Telephone channels
4. Data impulse channels

New areas in the concept of Video Place developed by Mr. Charles Moore and William Krueger of the Space Science and Engineering Center at the University of Wisconsin -- Madison, co-mingled several individuals or groups from different locations in the footprint, as noted in Figures 4 and 5.

In the use of television any number of our five channels may be used for input to the satellite, and it in turn can be sent to any number of locations in the footprint where receivers are installed. I'm assuming receivers will (at the very least) be available in all universities and colleges. Figure 6 shows this concept as it operates.

Now, as adult educators, let us begin to think about how this great technology might be used for adult education and for higher education. Some of us believe that higher education is one of the segments of adult education;

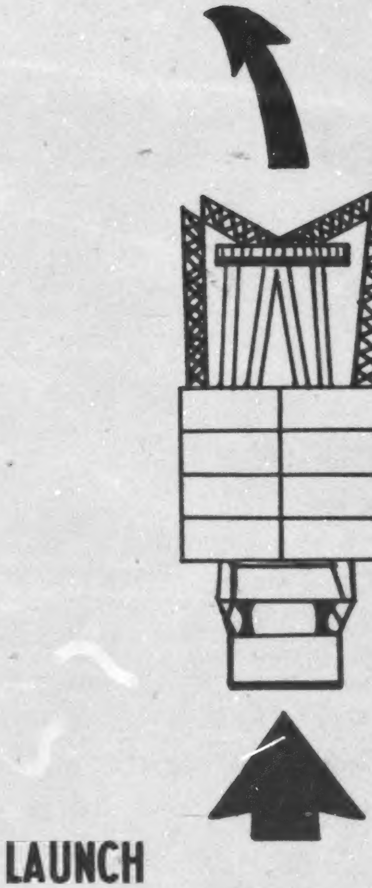


Figure 1 ETS-11 at Launch

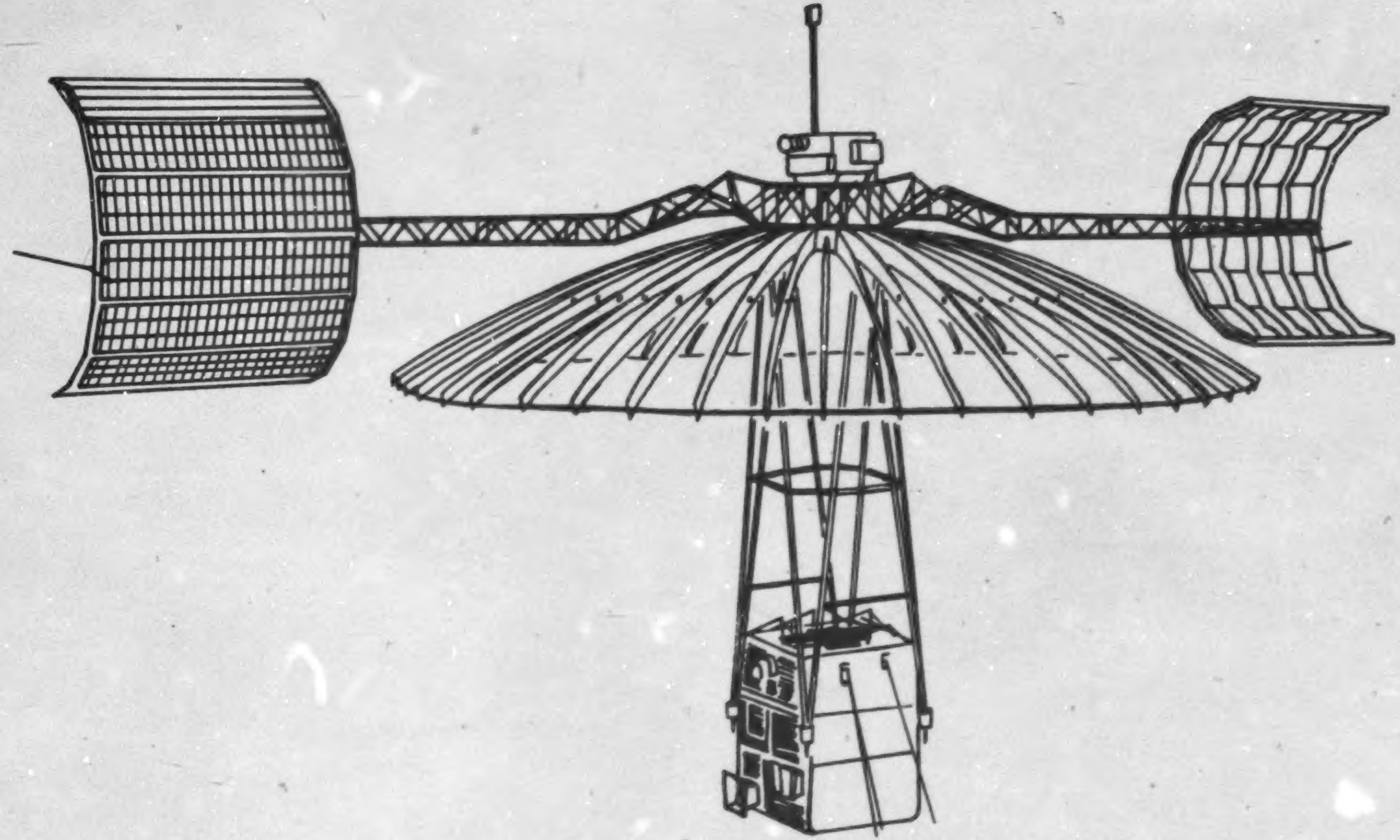


Figure 2 ETS-11 Ready to Operate

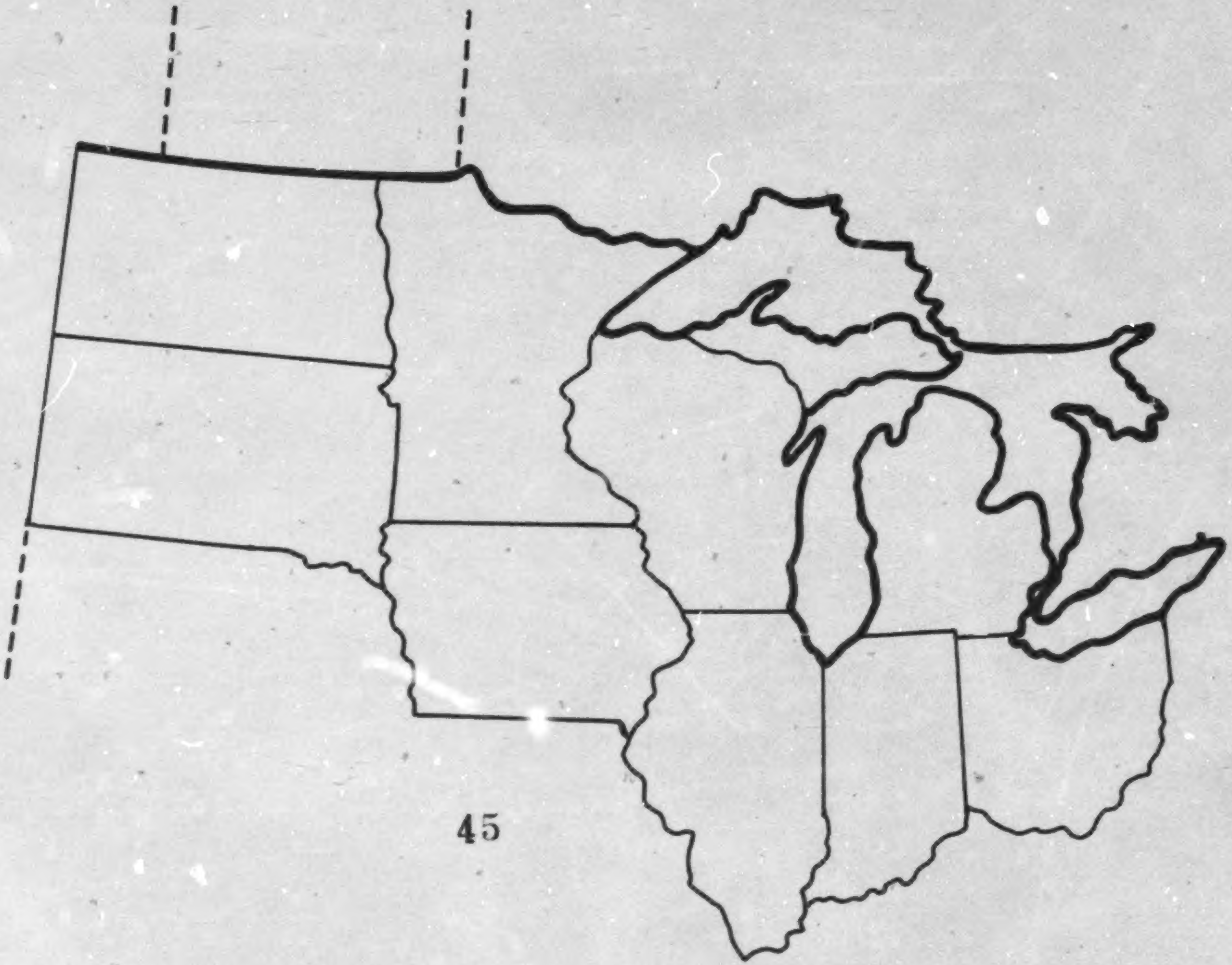


Figure 3 The General Area of Coverage of ETS-11

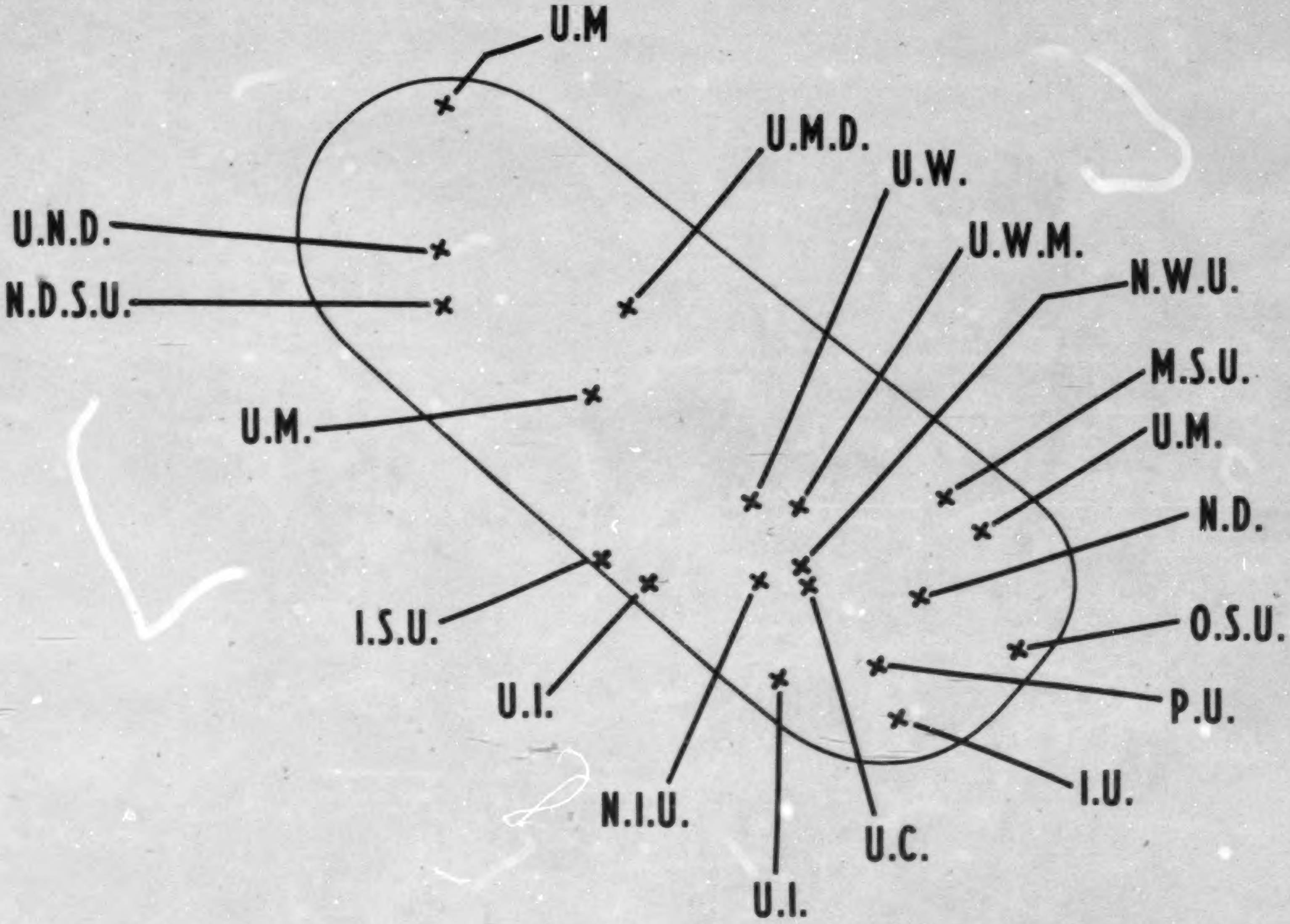

U.M
U.M.D.
U.W.
U.N.D.
U.W.M.
N.W.U.
N.D.S.U.
M.S.U.
U.M.
U.M.
N.D.
I.S.U.
O.S.U.
U.I.
P.U.
I.U.
N.I.U.
U.C.
U.I.

Figure 3A Examples of Universities Covered by the Footprint of ETS-11

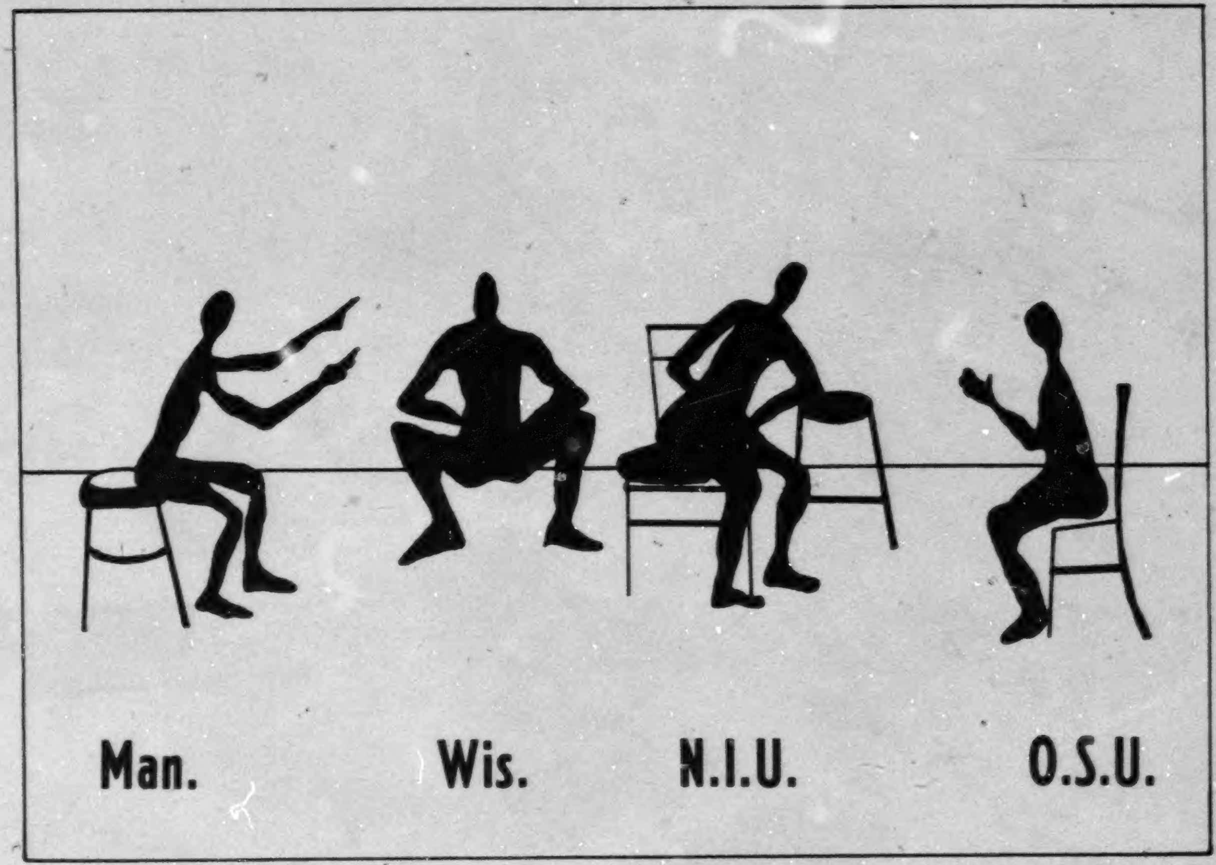

Man.
Wis.
N.I.U.
O.S.U.

Figure 4 An Example of A Video Place Seminar Among Universities

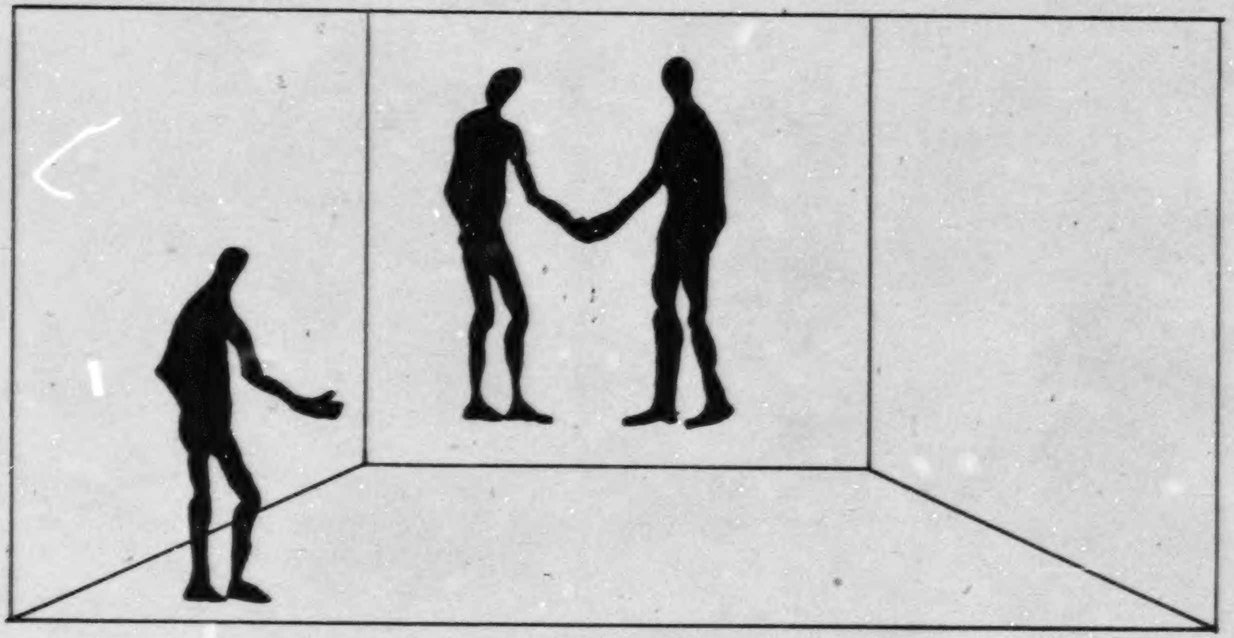
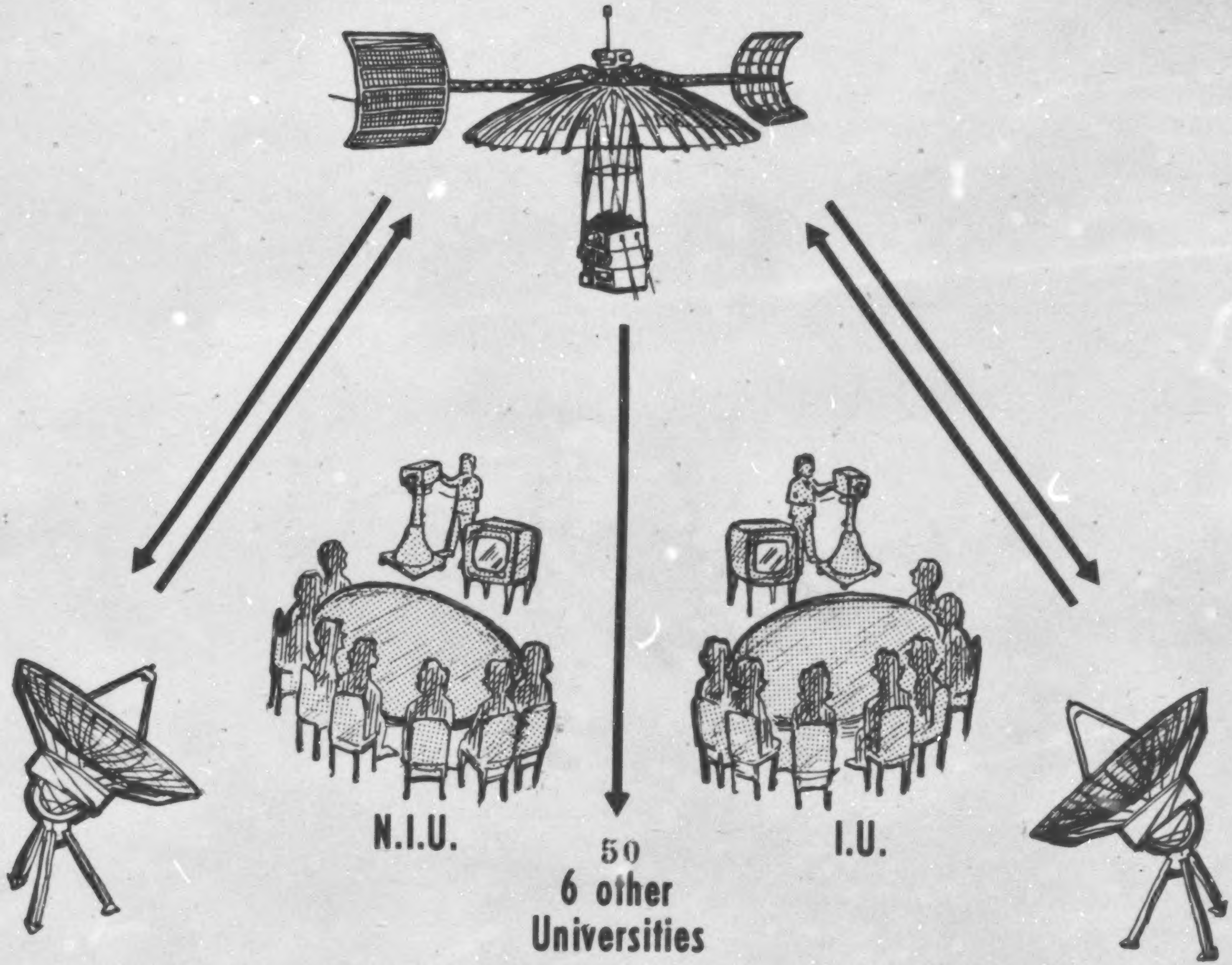


Figure 5 Video Place can give A Perception of being Together



N.I.U.
I.U.
6 other
Universities

Figure 6 The Input and Output Potentials of ETS-11

for the moment we'll assume that it is.

Suppose — and, indeed, this may come to pass — you are asked how this new technology can best be used. What would you use it for? What should it be used for? That is the question I'd like to leave the reader with -- he may well have a creative advantage over a few educators who are knowledgeable about the technology but afraid to dream. The educational ideas integrated into the ATS-6 projects, which I summarized, are not innovatively spine-tingling. Unless ideas for satellite use are more than routine, the use won't fly even if the hardware does.

We will close with some suggestions developed by practitioners and graduate students who have considered this matter in group problem-solving sessions:

1. The Live ERIC -- Plug researchers into a live seminar response to the major problems confronting selected fields of study. Use the ERIC or other data and literature bases to print out related materials prior to and following the live seminar.

2. Replace all "mini" systems (audio visual center, duplicated computers, ETN's, etc.) with a single maxi system (the satellites) that cover the area.

3. Coordinate the extreme specialities where neither research nor teaching facilities should be duplicated at more than a handful of institutions. Then have this limited number carry that special field (with satellite tie-in) to institutions with a small number of learners. This latter group will get the basics of the specialty before transferring for a final period of study to those institutions with the specialty.

4. In selected fields with "master resources," offer special courses across the footprint. Example: A professor lectures, illustrates and demonstrates to ten campuses two days per week. This can be live or taped. Then he conducts live videoplace class discussions with each of the ten as a follow-up. This could be the professor's full teaching load and only master teachers would be selected for this.

5. Call the satellite "Footprint University." Centralize primary resources -- i.e., library, films, audio-tutorial research exchanges. Concentrate on very special fields such as medical instruction, where rare surgical operations are shared, special diagnoses, medical school

consultations and on in-service education in this field. The same can be developed in Law, Business and special areas of education. In-service education will take highest priority over the footprint. "Footprint U" could become the key staff development and in-service unit for the professions in the area. Continuing education units as used in some professions could be centrally "banked" and on call through print-outs.

6. Special vocational training from on-site (factory) settings. In very special and fast developing areas it should not be necessary to duplicate facilities in vocational schools. Vocational schools should provide basic instruction while ETS-11 is used to keep up with the changing technology on the factory floor; live broadcasts to the vocational schools (or tapes) are available for follow-up.

7. Develop a research reporting system that removes lag time. For example, research on new agricultural pest controls, cancer, adult learning, day care centers, would vie for scheduling on the standard research time slot open each evening from X to Y hours. Each live TV research reporting will be followed by ERIC type printouts of background and new materials.

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III. THE NATURE OF CONTINUING PROFESSIONAL EDUCATION

Cyril O. Houle

Many of the most profound changes in American thought and behavior take place so gradually that their magnitude is seen only in retrospect. Out of millions of individual decisions, all trending in the same direction--though with frequent eddies and counter-flows—a basic alteration occurs in our way of life. For example, the movement of the population—from the east to the west, from the south to the north, or from the farm to the city and then to the suburbs--provides a land far different from any which our fathers and mothers knew. Other changes have become clear—the shift from agriculture to industry and then to the service occupations; from isolationism to internationalism; from a civilian to a militarized state; and from a free to a controlled economy.

We are just beginning to realize that another profound change has occurred. We have moved away from a common-school society in which every child and youth climbed from six to sixteen years up the ladder of learning from the kindergarten or first grade to some upper rung, depending on his ability and financial resources, after which formal education ceased. We have moved toward a society in which learning is designed and conducted from earliest childhood until senility or death. We call this concept "lifelong learning." This article will concentrate on the years after graduation from the professional school, but we should recognize that they are part of the larger whole of the lifespan.

Thirty-five years ago, we were all very sure that the only people who needed adult education were those who had not had the benefits of formal schooling. The process of education was like that of filling a jug, a task to be accomplished as far as possible between the age of six and the late teens or early twenties. With some people, colleges and universities did even more. The ultimate product might resemble Lord Macaulay of whom it was said that "he not only overflowed with learning but stood in the slop!"

Once the student was deemed to be suitably filled with knowledge, he or she had to endure a ceremony in which an orator announced that learning was only commencing—but the young graduates usually had their minds on something else at the time. Nobody--students, faculty or orator--regarded the utterance as anything but ritualistic. Learning was over, except for those poor unfortunates who had fallen off the slippery ladder at some earlier point and might be given a second chance to get back on by a literacy class, a night school, a correspondence course, an extension program or an early morning television lecture on which it was hard to keep one's sleepy eyes focused.

This faintly comic picture was never really valid. By the late 1940's, two fundamental facts became evident and, in retrospect, we can see that they were always true. First, the socioeconomic factor which correlates most closely with the amount of continued learning in which an individual participates is the level of his or her formal education. The more you have learned, the more you want to learn. Second, successful and innovative people are more likely than others to take part in some form of continuing learning. Thus adult education is not merely a compensation for the lack of earlier schooling. It is also a reward for both the quantity and the quality of formal education which an individual has undertaken.

Purposes of Continuing Professional Education

What are the purposes of continuing career education? Some people think about the matter very simplistically using some such slogan as "keeping up-to-date on new developments" but most people realize that several goals must be sought simultaneously and that the process of doing so is difficult. There is no subject, however complex, which—if studied with patience and diligence--will not become more complex. Such is true of the purposes of continuing professional education, of which we may identify at least eight.

The first aim is to keep up with the new knowledge required to perform responsibly in the chosen career. Just think, for example, how much has happened in the various professions in ten years. At the start of the decade, we had just learned how to keep a man in orbit around the earth; at its end, we had sent many men to the moon. Generals discovered very painfully that the crushing weight of great armaments cannot subdue a dedicated peasantry. At the same time, physicians and surgeons learned how to save the lives of men who in any previous war would have died. Architects turned away from their infatuation with steel and glass boxes and are now employing new materials or finding inventive ways to use old ones. Patterns of resource allocation applied by public administrators are shifting as a result of new doctrines. And pharmacists—perhaps more than the members of any other profession--have had to keep up with a changing scene, as new products and new therapies succeeded one another or enlarged the range and the subtlety of treatment.

The second aim of continuing professional education is to master new conceptions of the career itself. A recent study of dentistry notes that "twenty-five or 30 years ago, dental practice was limited to relieving pain and treating lesions of the teeth, the gums and other tissues of the mouth. Today it is concerned with the comprehensive management of oral, facial, and speech defects and with the oral structures and tissues as they relate to the total health of the individual." In other occupations, an equally profound change has occurred and the modern practitioner who does not understand that fact is obsolete.

The third aim of continuing professional education is to keep up with changes in the relevant basic disciplines. Practical careers rest upon theoretical bodies of knowledge. The health professions, including pharmacy, depend upon anatomy, physiology, pathology and biochemistry; agriculture is based upon soil chemistry, meteorology and plant pathology; and social work finds its roots in sociology, psychiatry and political science. The professional does not need to become expert in these underlying bodies of knowledge, but he does need to learn about their advances.

The fourth aim of career-oriented continuing education is to prepare (sometimes after the fact!) for changes in a personal career line. An individual may move in one of many directions, such as from generalist to specialist, from one specialty to another, upward in a hierarchy, from a lesser to a more responsible job of the same sort or into a completely new career.

The fifth aim of continuing professional education is to maintain freshness of outlook on the work done, so that detail is not neglected. In every kind of career, people go stale after a while. My favorite example was given by a novelist who said of a hospital chaplain, that "he was just out of seminary and performed last rites without running the words together." Perhaps education is not the only way to seek this aim, but its achievement can be aided by educational means--by supervisory training, by self-appraisal examinations and peer review, or by putting oneself in a new work or study situation which demands attention to detail.

The sixth aim of continuing professional education is to continue to grow as a well-rounded person. The mind should never be fully engaged in the practice of a lifework, however exalted, but needs to withdraw from that practice occasionally to be stimulated by contemplating theory or seeking understanding and skill in different aspects of life. Otherwise, as Whitehead pointed out, "The remainder of life is treated superficially, with the imperfect categories of thought derived from one profession." Thus, an individual becomes a dogmatist not only on a single specialty but on all of life. Each of you can probably suggest which careers lead to the greatest dogmatism.

The seventh aim of continuing professional education is to retain the power to learn. This objective is an important adjunct to all the others. The skills of mastering knowledge are like other skills--they are learned by practice, they atrophy from disuse and they can later be regained only with difficulty. The all-too-frequent end result was plaintively expressed by the gentleman who was heard to remark, "I can see pretty well with my spectacles and hear pretty well with my hearing aid and eat pretty well with my new teeth, and I am getting used to wearing a toupee and walking with a cane, but I do miss my mind!"

The eighth aim of continuing professional education is to discharge effectively the social role imposed by membership in a profession, a role which always exists whether or not the profession is licensed by the state. The professional must learn how to take collective responsibility, to make right choices on issues, to improve and extend the delivery of service, to collaborate with allied professions, and to help police the actions of fellow professionals.

Distinctions and Definitions

These eight purposes suggest that a fully fledged program of continuing professional education cannot be conceived and developed either easily or rapidly. Mrs. Yogi Berra once won a grand piano at a raffle. The next day, Yogi sought out a fellow ball-player known for his pianistic talents and said to him, "How about dropping by our house some evening and showing us how to use it." That story comes to my mind whenever I hear of some new device or process which purports to be an infallible way of maintaining the advanced and subtle skills and understandings of hundreds of thousands of highly trained people throughout a 50-year professional lifetime.

In designing any complex system, we must begin by making distinctions. When most people urge "continuing education," they really mean "intermittent education." They believe that the flow of customary daily experience should be enriched by reading books or journals, taking courses, attending conferences or lectures, or participating in other periodic or sporadic activities. Most educators settle very gratefully for occasional learning of this sort, operating wholeheartedly in the belief that "more is better." It is worth noting, however, that intermittent education falls short of the fullest meaning of "continuing education," which I take to be that engagement and interaction with life in which the human mind is steadily absorbed in its own enlargement. In even the most mundane tasks, some part of the mind stays free to act as observer and, if we wish, we can constantly contemplate, reflect upon practice, make judgments about the effectiveness of our actions and consider how we may improve our performance. Moving outward from this direct and internal experience, we can discuss our work with associates, move collectively toward its improvement, read, study, visit, explore and take part in all those systematic experiences which enlighten and enliven a career.

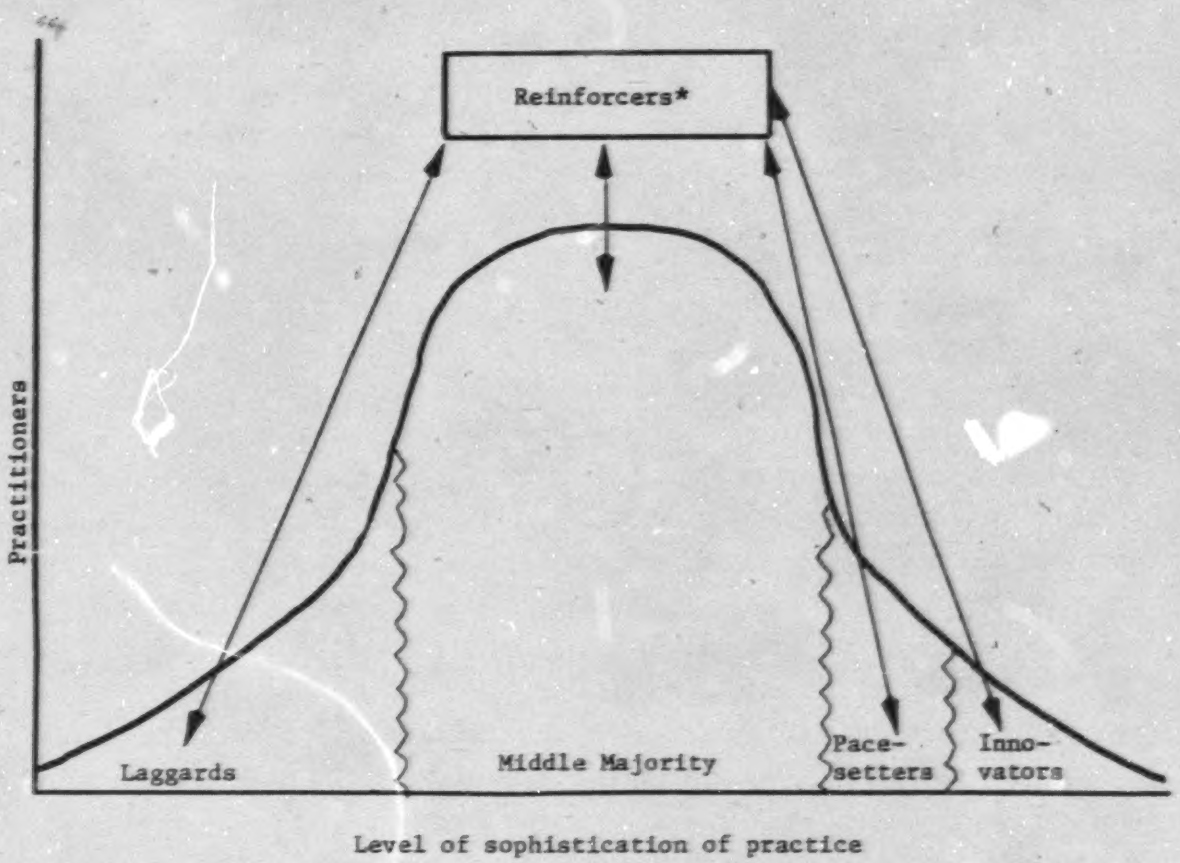
How well do people engaged in post-degree careers actually undertake this process of continuing education, or for that matter of intermittent education? Those who try to answer that question ordinarily talk as though every learned occupation has two classes of membership--those who "keep up" and those who do not, the latter being in the vast majority. But everyone really understands that the gradation is subtle, and that the members of a profession range greatly from those whose constant examination of their work performance leads them to an ever more refined and exalted conception of it to those who seem content to grind through their days in deadly routine.

A hypothetical distribution of the members of a profession on the basis of their sophistication of practice is charted (Figure 1). Modern sociological investigation suggests that such people may be ranged along a normal probability curve in terms of their readiness to innovate and adopt new practices. On this curve, at least four different levels may be distinguished, though not with precision. At the upper end of the continuum are the innovators, who continuously seek to improve their performance, usually in highly unconventional ways. They are attracted to ideas and practices that are still untested, but which seem to offer great promise. Their desire to innovate may have to do only with the techniques of their work, but it may also lead them to push the frontiers of their careers outward or to make linkages with other realms of knowledge.

The pacesetters feel the need to be progressive in their practice but are not eager to be the first by whom the new is tried. They wait until a practice or idea is fairly well tested, and then adopt it. This judgmental quality of their characters tends to win respect and therefore to make them legitimizers of innovation for other people. The majority adopters make up the great bulk of those who practice the career. Among them, in a gradually spreading wave, innovations are diffused, winning support in part because pacesetters have set a seal of approval on them. The final group are the laggards, who learn only what they must know if they are to stay in practice. They have built a house without windows and now they live in the dark.

Innovators--It is my hypothesis that the nature and extent of the continuing education of those who work in a career is directly related to their level of sophistication of practice. Innovators do research, have clear-cut plans of independent learning, seek and cherish part-time

Figure 1 - A Classification of the Members of a Profession**


Reinforcers*
Practitioners
Laggards
Middle Majority
Pace-setters
Inno-vators
Level of sophistication of practice

*Professors, association executives, researchers, government regulators, stimulators, editors, etc.

**From the address "The Nature of Continuing Professional Education" by Cyril O. Houle, Professor of Education, the University of Chicago, at the APhA Seminar for Continuing Education Personnel.

teaching positions, belong to groups which have restricted membership and which take pride in being more advanced in their practice than their colleagues, read highly specialized journals, attend invitational seminars and leave their work occasionally to engage in full-time study. Thomas Hobbes said of them that they have "a lust of the mind, that by a perseverance of delight in the continual and indefatigable generation of knowledge exceedeth the short vehemence of any carnal pleasure." Innovators are so eager to seek the new that less arduous efforts to learn than their own may seem superficial or even meretricious to them. This often leads them to ignore or be contemptuous of formal programs of continuing learning.

Pacesetters—Pacesetters look in two directions: toward the innovators and toward the majority adopters. They value opportunities to be exposed to new ideas and techniques, but they also maintain an attitude of conservatism toward avant-garde practices. Therefore, they seek to learn by the methods used by the innovators, though to a less whole-hearted degree. They are likely also to esteem membership in restricted societies, part-time faculty positions, and other similar kinds of learning, though their aim may not be so much to gain knowledge as to prove to themselves and to others that they are part of the inner circle of the profession.

Yet the pacesetters are also concerned about the career group itself and feel a strong need to organize, conduct, or take part in its structures and its key functions. Thus the pacesetters strongly support group learning endeavors, giving leadership to such activities as the meetings of professional societies, conventions, exhibits, short courses, lecture series, conferences, and efforts to learn within such institutional settings as schools, welfare agencies, hospitals or libraries. The pacesetters are also the chief sponsors of the newer technologies of learning, such as films, closed-circuit color television, video-tapes, recordings or telephoned digests of research findings, self-scored examinations, computer-assisted instruction or the use of simulated situations or case studies. The pacesetters often take part in these activities themselves, though they do so with mixed motives; they want to learn, but they also want to lend to an activity the support of their presence as acknowledged leaders in the profession.

Majority adopters--Majority adopters, since their number is so large, have a broad spread of innovative interests, ranging from those practitioners who are just below the pacesetters to those who are just above the laggards, and sometimes moving upward to one or slipping downward to the other. The majority adopters participate in organized programs of continuing education both because of a sense of obligation and because they respond to the examples and the appeals of the pacesetters. Ideas and practices are also diffused (more than is sometimes admitted) by the commercial appeals of salesmen of supplies, equipment, and services, who almost always surround their approach to a professional with some aura of education.

Majority adopters vary greatly in their acceptance and practice of self-education. They usually pay lip service to the idea, but it is harder to win their attention to a specific proposal than their verbal support and harder still to persuade them to participate in it. They often set themselves apart from innovators, who are--they are likely to think--too extreme in their advocacy of whatever is new or who are likely to live in a world removed from that of practical affairs. The feeling of rejection is reciprocated. In the field of medicine, J.G. Freymann has provided an example of such separatism--

> ...among a vocal minority of practicing physicians can be found a thinly-veiled anti-intellectualism, preoccupation with medical economics, and resistance to change. In the academic community can be found islands of intellectual snobbery, startling ignorance of the quality of practice outside the university, and impatience with conservatism.

Such a schism is not unique to medicine. This separation, between the innovators on the one hand and a substantial number of majority adopters on the other, highlights the importance of the pacesetters in any strategy of organized continuing education.

Laggards--Laggards cause deep concern to everyone. A profession has selected them, trained them, admitted them to practice, and must fight to protect their perquisites. If they are licensed, society has a stake in their ability. But laggards do not respond properly to their privileged position. Their ideas have hardened before their arteries. Their old skills deteriorate and they do not adopt new ones--or, if they grudgingly do so, it is by a not easily understood process of osmosis or by yielding a bit to pressure. The laggards say (if they defend themselves at all) that education costs money and time. They do not realize that ignorance is even more expensive. Other people may tell them how to solve their problems, but they have a difficulty for every solution.

Reinforcers--You will have noticed a fifth group of people on the chart, the reinforcers. They retain a career identification but they do not practice it directly. Instead they are professors, association executives, researchers, government regulators, stimulators, editors, and occupiers of many positions. Such people bear the chief administrative burden of continuing education since their livelihood centers on it to a greater or lesser degree. Often they work directly with learners, giving lectures or writing papers or editorials. More frequently, perhaps, they set up the arrangements by which other people, chiefly innovators and pacesetters, carry out the major instructional responsibility.

All reinforcers conceive of themselves as innovators or pacesetters but, as the chart suggests, they are actually drawn from all levels of sophistication of practice, including the laggards. People no longer competent to practice a profession sometimes occupy safe berths in associations, in government bureaus and, though as a professor I hate to say it, in universities. If a reinforcer wants to see a laggard, he often needs only to look in the mirror or go down the hall!

As individuals, the reinforcers tend to follow the practice of the basic group to which they belong. If they have been innovators they are likely to remain innovators, though their attention may now be devoted less to the content of the profession itself than to the new frontiers of collective advancement in which they find themselves. The pacesetters and the members of the middle majority behave in their accustomed ways, and laggards can resist knowledge just as successfully on the staff of a journal, in the secretariat of an association or of a government bureau, or as members of a university faculty as they could if they were in active practice.

The collective mix of the reinforcers has a great deal to do with the amount and kind of continuing education which a profession or other career group sponsors. If most of the reinforcers, for example, are toward the right-hand side of the curve on the chart, the program they produce will be characterized by vitality, novelty, and diversity. If so, it is possible that the members in the lower half of the distribution will criticize the program because it is too impractical or visionary or costs too much. If the mix of reinforcers centers around the middle of the distribution--as it often does--the continuing educational activities provided will stay within a safe-and-sure pattern, following the routines dictated by custom. Meanwhile, the pacesetters will grace speakers' tables and the innovators will go off in their individual ways or form special groups that satisfy their hunger for learning. They withdraw from the main body of the career group and sometimes view it with disdain or scorn.

To suggest that these five groups exist is not to imply that men and women are locked universally and forever into a single pattern of innovativeness or of study. Some people may welcome a new idea in one part of their lives and reject it in others; and the growth of responsibility turns many a young innovator into a middle-aged pacesetter. Yet this ordering of individuals into broadly definable groups appears to describe at least one facet of reality.

A Look at Present Policies and Beliefs

If so, we need to look at some of our present policies and beliefs. We have a generalized idea that everybody ought to learn more than he now knows. It is this thought which gives rise to the policy that more is better--more meetings, more courses, more lectures, more journals, more books, more everything. To achieve this idea, we may simply churn out a number of generalized programs for everyone who will come; or we may use a variety of approaches, thinking about special areas of content or about the needs of distinctive occupational groups. It may be that if we want to think about advancing a profession as a whole, we may first need to consider the distinctive educational requirements of each of the subgroups I have hypothesized.

The innovators need to find ways to explore the frontier of the occupation, creating the new ideas and the tested knowledge that will eventually be diffused to other professionals by the various channels of communication. The pacesetters need to learn how to exercise their special tasks of leadership to establish patterns of education. And whoever is responsible for a group of reinforcers--the dean of a school, say, or the administrator of a government bureau or a professional association--needs to try to recruit pacesetters and innovators for his staff and give them freedom to work and learn effectively.

However, the two chief concerns of organized continuing education today in all occupations are the same--how to speed up the learning of the majority adopters and how to reach the laggards. The arguments ordinarily deal with whether it is better to use the stick or the carrot. This analogy grows more vivid when one considers that these two forms of stimulation are usually required by mules or donkeys. In the matters with which we are dealing, the stick requires the threat of lawsuits or governmental regulation, compulsory continuing education, the fear of adverse publicity, the loss of the right to practice, and the introduction of licenses which must be periodically renewed. The general theory is that if minds are not cultivated, they should be plowed under. The carrot calls for the growth and enrichment of opportunities to learn until they are so pervasive and attractive that they become irresistible. Some greater use than at present of both approaches seems inevitable, though the mixture will vary from occupation to occupation, and from time to time.

All of these concerns suggest intermittent education, but beneath them lies the deeper theme of continuing education. How does the individual worker build within his or her value structure the belief that continuous learning should be a way of life and how is that belief carried out? Is performance in this respect a wholly innate or self-directed accomplishment, or can external influences be brought to bear upon it? If the organized career group can have such an influence, how does it do so? Is it enough merely to increase the volume and quality of intermittent learning in the belief that thereby reinforcers, innovators, pacesetters, the middle majority, and laggards will all be aided to strengthen their underlying sense of desire and need for learning? It is in finding answers to these questions that the deepest challenges lie.

The world of work is scorned by those who argue that it does not involve the nobler aspects of life. And yet, as Gautier once said, "All else passes; art alone endures." He was thinking only about the fine arts, but his observation is also true in the dictionary's broadest definition of art as "skill in performance, acquired by experience, study, or observation." Modern men and women find that the essential nature of the work they do (as pharmacists, architects, engineers, healers, priests, administrators, or members of other professions) has endured through the centuries while civilizations rose and fell and new ones took their place.

The quest for excellence in any craft requires continuing effort to learn to perform it well. An observation by Joseph Conrad identifies the lasting goal at which that quest always aims. He said, "...the attainment of proficiency, the pushing of your skill with attention to the most delicate shades of excellence is a matter of vital concern. Efficiency of a practically flawless kind may be reached naturally in the struggle for bread. But there is something beyond--a higher point, a subtle and unmistakable touch of love and pride beyond mere skill; almost an inspiration which gives to all work that finish which is almost art--which is art."

IV. SELF PLANNED LEARNING AND MAJOR PERSONAL CHANGE

Allen Tough

The first item on Chart 1 outlines the focus or phenomenon that has fascinated me for the last ten years or so. I have called it a learning project, but what I suggest in parentheses would be an even more accurate title -- a major learning effort. The focus is on people trying to learn, trying to change. People of course learn without trying, but that is not what I'm looking at. What I suggest that we look at is highly deliberate effort; we define that as effort where more than half of the person's total motivation had to be learning and retaining certain definite knowledge or skill -- so that less than half of the person's motivation can be pleasure or enjoyment.

And I've suggested that there has to be a clear focus. The person has to know what he or she is trying to learn. Someone who walks into a museum for an hour knowing that he will learn something but not knowing what, simply does not qualify by our criteria. We have a minimum time period, seven hours -- that is, over a period of several months a person has to spend at least seven hours trying to gain this particular knowledge and skill. Now in fact the average learning project is around 90 or 100 hours, so we do not have to use that seven-hour cut-off all that often. My reason for choosing the seven hours was partly as a magic number, and partly it's about one working day; and my feeling has been that if someone devotes the equivalent of a working day to trying to learn something, it is worthwhile looking at it.

Number two on Chart 1 gives you the various populations of the study interviewed by our group in Toronto and by graduate students and others all across the U.S.A., Canada, Ghana, and New Zealand (though I do not have the data from there yet). Combining the results of all these studies we find that the differences are not great. In fact, the data found in each study are roughly the same as data found in the other studies. And that is what number three on Chart 1 deals with -- how

Chart 1 Learning Projects

1. A learning project (major learning effort):
   - -- highly deliberate effort
   - -- to gain and retain certain definite knowledge and skill
   - -- clear focus
   - -- at least 7 hours

2. Populations surveyed:
   - -- Toronto: pre-school mothers; elementary school teachers; lower white-collar women and men; factory workers; municipal politicians; social science professors; unemployed men; IBM salesmen; professional men; 16-year-olds and 10-year-olds
   - -- Vancouver: members of public employees' union
   - -- Syracuse: suburban housewives
   - -- Tennessee: large rural and urban populations
   - -- Nebraska: adults over 55
   - -- Fort Lauderdale: adults who recently completed high school
   - -- Atlanta: pharmacists
   - -- Kentucky: parish ministers
   - -- West Africa (Accra, Ghana): secondary school teachers; bank officers; department store executives
   - -- New Zealand: several North Island populations

3. A middle or median person:
   - -- conducts 8 different learning projects in one year
   - -- spends a total of 700 hours altogether at them

4. Who plans the learning efforts from one session to the next?
   - -- the learner: 68%
   - -- a group or its leader/instructor: 12%
   - -- a pro or friend in a one-to-one situation: 8%
   - -- a nonhuman resource (records, TV, etc.): 3%
   - -- mixed (no dominant planner): 9%

5. Out of 100 learning projects, 19 are planned by a professional educator and 81 by an amateur.

6. Most common motivation: some anticipated use or application of the knowledge and skill.
   Less common: curiosity or puzzlement, or wanting to possess the knowledge for its own sake.
   Rare (less than 1% of all learning efforts): credit.

common this phenomenon is, and how much time it takes. Those figures pertain to the middle or median person (that is, half of the people in these populations have learned more and spent more time learning and half the people have spent less). And you will notice that this person conducts eight different learning projects, eight major learning efforts each year -- in eight quite different areas of knowledge and skill. That in itself is quite different, of course, from what previous surveys have found.

The other statistic is that people spend a total of 700 hours at this activity -- highly deliberate efforts to learn. (I decided against calling The Adult's Learning Projects "Seven Hundred Hours" because then we were not sure about the figures. Now I wish I had called it that.) The figure is probably low -- at least for a great many populations -- for two reasons. First, many of our interviewers have failed to get the full number of hours. Almost every interviewer reports missing some learning projects. Then some of the later studies have actually had much higher figures than that seven hundred. That works out to almost two hours a day -- an incredible figure when you think about it.

Now, number four on the Chart helps one to understand why our figures are so different from those of Johnstone's National Survey, in the 1960's, and some of the other surveys. It describes who planned the learning effort from one session to the next -- not who did the initial planning -- the day-to-day deciding about what to learn and how to go about it. And, of course, the majority are self-planned. The learner himself or herself decides which step to take next in the learning effort -- the learner plans the path. It is often a zig-zag path which seems helter-skelter, but the learner does decide from one session to the next what and how to learn.

Now what has happened I think, looking at the research for the last fifteen years (or even longer), is that until fairly recently people looked only at the tip of the iceberg. Only a small part of the iceberg shows above the water's surface. In adult learning or adult education that small highly visible tip of the iceberg is groups of people learning -- in auditoriums, classrooms, workshops, or conferences. That is what adult educators have noticed and paid attention to over the years. Rightly so. That's an important phenomenon.

Now Johnstone took the great step of putting a question in a survey asking for other ways of learning. He did not have any probes; he just asked one simple, blunt question; and so he did not get all that much response. He got far more response than he anticipated. He was amazed. His Volunteers For Learning reflects his amazement. But of course, we now know he got at only a tiny portion of the self-planned learning or learning planned outside of educational institutions. We came along, in a simple-minded way, and interviewed people about all of their learning efforts. We found they couldn't remember them. So we developed probe-sheets that suggested some things that people learn about. And we also took an hour and one-half (at least an hour) in most of the interviews to study just this phenomenon, whereas Johnstone was studying a whole range of phenomena.

We really pushed, poked, probed, and helped the person recall. We found it took people about 20 to 25 minutes to really start getting on our wavelength and start to recall their projects, at least beyond three or four of them. Also Johnstone's interviewers were interviewing the person who answered the door and asking them about every adult in the household, so that if I answered the door I would be asked about my wife's learning projects as well as my own.

Well, when I did interview my wife I found that I was not much aware of her learning projects. I thought that I knew her pretty well, but I was astounded at the kind of things she was spending countless hours at that I simply hadn't put together although I knew some of the bits and pieces. So I would not have answered Johnstone's interviewer very accurately about her learning. And I would not have done a great deal better with my own learning. And I suspect that most of us are in the same condition -- not really in touch with all of the things that we have been trying to learn in the last twelve months.

So Johnstone's interviewers asked a question something like this, "During the last twelve months, have you, or anyone else in your household, tried to learn something independently, on your own?" Most people did not recall any, and we now find, of course, that the real picture is the reverse of that. Most everyone recalls quite a few -- and it is a rare person who remembers only one or two or three. In the Toronto group we found only one "zero," and in most of the other studies there were either no zeros or very few.

We've looked at this total iceberg then and most of it is in the invisible part, the self-planned part. It is invisible to the learners; it is invisible in other people around them. It is a phenomenon that we are just not in touch with; it is not very common at a dinner party to say, "And what are you trying to learn lately?" It is not something that you talk about. We talk about courses and conferences, but not the other kinds of learning. At least we do not put it all together in a single phenomenon -- an effort to learn.

You will notice on the chart that 12 percent of all major learning efforts are conducted in groups, planned by the group or the leader, or instructor. Less than 10 percent are conducted in a one-to-one situation -- the way we all, or most of us, learn to drive a car, play the piano or tennis. The figure that surprised me the most I guess is the 3 percent for non-human resources. I thought programmed instruction and television series, language records, and so on would be much more popular than they turned out to be. Then there is the 9 percent that is mixed. Of course, almost all of those are self-planned plus something else, so the self-planned figure of 68 percent should be raised to something like three-quarters or 77 percent.

In number five I have tried to capture all the figures in one very simple statistic, and that is that, if you look at one hundred learning projects, about twenty are planned by professionals and about eighty by the learner himself or herself or some other amateur planner.

Turning now to what people learn about or learn to do, we find that there is incredible diversity. If you ask a room full of people to make lists of their recent personal learning projects you will find a mind-boggling variety of topics. An implication of this is a very very old one in adult education -- that no one institution could possibly meet the needs of all learning projects for all adults. In fact I do not think any institution can even comprehend all of the items you get on such lists. So adult education must be pluralistic; it could not possibly be monopolistic as youth education primarily is. Anyone who has studied adult education knows that this is one of the basic characteristics of the field; there is tremendous diversity of institutions. We begin to see why, because of the incredible diversity of learning needs.

It will perhaps be useful to try to answer some questions frequently put to us about our research.

Question: "How do you distinguish between activities and learning projects, or are they one and the same?" What we are really looking at is the intention of the activity. So that regardless of what the person is doing, if he is trying to learn, trying to change through that activity, then we call it a learning project. People do learn in other ways. There are lots of activities that lead to learning. But if that is not the person's primary intention then we do not include it in our definition of a learning project.

Question: "Do you define learning as change?" Yes, it can be internal change -- within one's head -- understanding, information, or whatever. I define a learning project as an effort to change.

Question: "Is some sort of stress a prerequisite for a learning project to begin?" No, maybe approximately one-third of all learning projects begin because of this, but a lot begin for other reasons -- curiosity, for example. The desire to build a porch around my house may not come out of stress; it may simply be something I want to do. Growing vegetables might be initiated because you don't have money to buy them, or it might just be for fun.

Another important factor is that these learning projects can continue over many years. In West Africa we found a great many projects that went back ten or fifteen years. Students at my institution now are trying to trace some of the projects back to see what the origins are, and they are often going back to childhood -- so that you can't understand the present learning project without knowing what the learner's previous interests were. There really is a long-term aspect. Now some of them come and go. Some are seasonal, like tennis. Some come and go, like raising kids, in the sense that a different kind of crisis will arise at different times. The kids seem to go through periods of plateau when everything is rather sunny; then things seem to fall apart. He or she won't sleep or eat, or hits people. Then you turn to Dr. Spock or your neighbors or pediatrician about how to deal with it. Then you go through another period of several months when you are not learning anything or putting in the effort.

There are other learning projects (I think this is a typical American pattern) that are very brief. I have to make a decision by Wednesday, so I will read everything I can now and ask people about it, and then I'll make the decision. Or with child-rearing, you may have a crash program for five days. This seems to be the American style. I say that because we were not picking this up in West Africa even among business executives, who did not seem to have so many of these short-term projects.

Question: "What about variations in the learning as the result of work or other activities that are taken on primarily for reasons other than learning?" It is not always true that people learn from their work. The trend that I see is that people are choosing jobs that seem to be educative, and corporations or employers that will be educative. They are asking a little less now of pension plans and that sort of thing and a little more about the kind of organization it is. General Electric did a survey on the future of business values and they clearly found this shift toward looking at how educative a job or task is. I enjoyed interviewing one fourth-grade teacher who chose things to teach that he wanted to learn about. He knew that was an effective way to motivate himself. I have heard Sunday School teachers say the same thing. So we do choose some of our tasks partly in order to learn. It is a fascinating phenomenon.

Major Personal Change

Let's go now to another related topic, which I call "major personal change." In the last few years I have begun to focus my own energy on one specific area of learning projects. Not that I think that the others are unimportant, but my own interest is to study major personal change. Major means that the learning effort is designed to produce major changes, significant changes, in the person. Personal change suggests that it is somehow a personal thing. It is a change in life-style, attitudes, emotional reactions, male-female relationships, or whatever it happens to be. All of these seem more personal than learning about what is happening over in the Middle East or something like that. I'm not putting down the importance of that, but just trying to explain my own focus on the major or immediate types of changes.

There follow two charts that deal with this area. Chart 2 (called "What Personal Changes Can Someone Strive For?") lists the content or curriculum of this area, i.e., what it is that people can try to change in themselves. Chart 3 ("Some Methods for Personal Growth") lists the how, the paths, the ways, the steps, the techniques and methods. I would like the reader to look over those two charts — try to be aware of your reactions as you do so — your mental, emotional, and intellectual reactions. What do these charts do to you? What do they do to your thinking and what do they do to your feelings?

Here are some common reactions of persons encountering the items listed, followed by my own comments:

Reaction: "You get down to some very basic things, and I find myself involved in quite a few of them." This is a very common reaction -- to recognize yourself in some of the items.

Reaction: "Seems to be something you do from childhood through adulthood." Some of these things go all through your lifetime — not like those short-term projects we mentioned earlier.

Reaction: "Many seem to be types of experiences that many people have not begun to consider." No one person is going to be involved in all of these things. Probably most of them never will be involved in them. Some of them may "bother" you. Perhaps some of you would like to change in a lot of these ways, but find you are not using many methods to do so. That is a fairly common reaction.

Reaction: "Looking at the list, I feel that the majority of them could or would occur outside formal institutions." Yes, there is change in formal institutions, but many of them tend not to provide these kinds of experiences.

Chart 2 What Personal Changes Can Someone Strive For?

a. self-understanding

b. express genuine feelings and interests

c. close, authentic relationships with others

d. broad understanding of history, geography, cultures, universe, future

e. better performance on the job; re-shape the job or its meaning; new job

f. quit drinking; stop beating children; quit heroin

g. cope better with the tasks necessary for survival

h. body free from excessive tenseness and wasted energy; physical fitness

i. new priorities among goals (desired benefits); a fresh balance of activities or expenditures

j. re-shape relationship with mate; new mate or partner (or an alternative living arrangement); new circle of friends

k. capacity for finding a calm center of peace and inner strength amidst the turmoil

l. adequate self-esteem

m. reduction of psychological and emotional problems and blocks that inhibit full human functioning

n. improved awareness and consciousness; more open-minded and inquiring; seeking an accurate picture of reality

o. greater sensitivity to psychic phenomenon and to alternate realities

p. freedom, liberation, looseness, flexibility

q. competence at psychological processing, at handling own feelings and personal problems

r. zest for life; joy; happiness

s. liberation from female-male stereotyping, or from other role-playing

t. emotional maturity, positive mental health; higher level of psychological functioning

u. spiritual insights; cosmic consciousness

v. less selfish and more altruistic; a greater effort to contribute to the lives of others

w. acceptance and love of self and others; accept the world as it is

x. come to terms with own death

Chart 3 Some Methods For Personal Growth

1. books
2. conversations with a close friend or an informal helper; relationship with mate or love partner
3. jogging; diet; bioenergetics; massage; acupuncture and polarity therapy; Rolfing; Well Body Book; biofeedback; sports; movement and dance therapy
4. yoga exercises; martial arts (t'ai chi; aikido; judo; karate)
5. individual counseling; test results; individual psychotherapy; group therapy
6. behavior modification
7. encounter groups; sensory awareness; group exercises to develop self-insight or close authentic human interaction; Herbert Otto's exercises; psychosynthesis; Gestalt therapy groups; Transactional Analysis; psychodrama; art therapy; theater games
8. individual use (whenever appropriate) of personal exercises and psychological processing such as thinking, listing wishes and fears, interpreting dreams, keeping a journal, moving to music, contemplation and reflection, listening to one's unconscious
9. consciousness-raising groups and literature for women and men
10. out-of-body experience or other psychic experiences; astronauts' experience of seeing the earth from outer space
11. guided fantasies; directed daydreams; Transcendental Meditation; Mind Games; hypnotic trance
12. re-living one's birth or infancy; Grof's third LSD level (symbolic rebirth); primal therapy
13. religious, spiritual, cosmic-unity, symbolic, or consciousness-altering experiences -- via religious services, spiritual practices, mysticism, psychedelic drugs, Mind Games, prayer, wilderness solitude, music, meditation, sex, chanting, spinning, Arica training, baptism in the Holy Spirit, Zen, Buddhism, Christianity, Judaism, Islam, Taoism
14. Tarot; I Ching
15. alert childbirth; living with children; Parent Effectiveness Training
16. films; television; audiovisual environment; self-improvement tapes and kits
17. tackling a challenging task or an educative job; working in a growth-facilitating organization
18. course; conference; discussion group; management training; organizational development
19. self-help groups and other peer-groups; Synanon
20. music; arts; crafts
21. deliberate change in lifestyle; new circle of friends; new neighborhood; expressive clothes
22. travel or live abroad; live within the encounter culture, a Consciousness III life-style group, a commune, the counter-culture or alternative culture, or some other subculture or culture

Reaction: "It seems to me that a lot of these are motivated out of prevailing discontent with materialistic society." Right, these aren't very materialistic lists. They are also lists that assume that the person isn't scrambling to get enough money to eat, not severely crippled in some emotional way, that some of his basic needs are taken care of. People who do not have enough money would not even know what these lists are all about.

Reaction: "It seems to me that many of the methods are for the person who is aware that they are available and not necessarily for the guy who is just sitting at home. I can't see him dealing with a lot of these methods." Many of these methods have been developed in the last ten or fifteen years; so they are not generally known to the public. My own project is to try to develop a bridge between this array of available techniques and people who should know about them. It is partly their recency, and partly that they seem strange to people. Half the methods on the list probably bothered you when you first heard about them -- even one like jogging. So there are a lot of reasons that people do not know about these kinds of things. I would like to see that change also.

Reaction: "I seem to acquaint a lot of the personal changes with Maslow's 'Self-Actualization,' and, as others have said, there are only certain people who have their other needs met who can work towards that." I think I am also picking up Maslow's "Self-Esteem level" and his "Interpersonal-Relationships level."

Reaction: "It is interesting that almost everything on the personal changes list is a type of assessment or judgment about progress that is very 'individual.' I have to decide for myself whether or not that change has occured. I might get some feedback from other people, but it is my decision and no one else can tell me whether or not I've pulled it off." True, most of these items are very hard to measure. We have found that people who are learning on their own are preoccupied with evaluation of how well they are doing and what level they are at. They develop all kinds of ways of dealing with that. One of them is to have a conversation with someone who is an acknowledged expert. There are other ways. Certainly some items on this list are very hard to evaluate. How do I know when my self-esteem has reached an adequate level? These are all subtle matters. The thing that amazes me is that we now have some technologies that produce some of these changes, and that is a big step. Another big step would be to help people know where they are and how far they have moved.

Reaction: "Though this is geared toward middle class individuals, I think that for adult basic learners, one of the things that's missing here is learning from one's children." That's a fascinating notion -- learning from one's children.

Reaction: "There seems to be willingness to risk. You might find out something that you do not like about yourself." That is right. These are risky patterns, not safe patterns. That is the choice of the learner.

Reaction: "I have the feeling that educators are pretty much staying away from teaching and talking about values, and our schools are not making these things known as they should." That is right. Now somebody suggested that adult educators are not experiencing many of these things themselves. That could be one reason. In fact the way that these often get into the curriculum is that a teacher goes to a workshop or something similar and gets turned on to new technologies -- rather than through a curriculum guide or something similar.

Reaction: "I find it very hard to believe a couple of comments, that people don't grow or don't want to grow. I just don't believe that." I don't know. I do know that there are a lot of risks involved, and we don't always want to take risks. Take friendship even: I know a Canadian who says that if you ask Americans how many close friends they have, they will say, "Oh six, eight, ten." But if you ask them how often they've seen those friends in the last four months, they will usually say, "Not very often." And he concludes that Americans do not have close friends.

Perhaps I should add that I do not want to be a salesman for any of these methods. I do not recommend them whole-heartedly to all people. I am simply trying to list methods that some people use for growth -- that is, methods that a particular person might use in an attempt to grow. In that sense I do not think people object to these items. I used to have "scientology" on the list, but it bothered people so much I took it off.

Implications

We can consider now some implications for action — for educators and educational institutions -- looking at some better kinds of help that could be provided. What do we do to facilitate, to help people learn more or better things for themselves? Or, how can we help people with major personal change?

I have five answers to that question that I will state fairly quickly. The first one is rather strange. It is to look not at the program the institution provides for people but to look at the staff of the institution. The concept here is to look at educators or teachers as learners instead of looking at them just as teachers, or people who are facilitating the learning of other people. I think probably the largest change in our institutions will come from learning how to facilitate the learning of the staffs of those institutions.

I don't mean that educators don't learn. We've found that elementary teachers, for examples, spend an average of two hours a day learning to be better teachers. But at the same time institutions tend to do very little to facilitate the learning of their own staff members. To me this is just an incredible situation. If any institutions in society should be facilitating learning and change among their own staffs, they should be schools, colleges, and adult education programs. But in fact they don't. One of our doctoral students who had interviewed the elementary school teachers decided to try to put into practice the recommendations at the end of his dissertation. He put himself on the line and became the principal of our campus lab school, where my kids happen to go. He has just transformed that place in three years. He's done it by focusing his efforts on helping these teachers to become better teachers. And of course, because he'd studied their learning, he knew that most of it was self-planned. He then tried to facilitate that natural process -- not run a professional development day or staff meetings or something like that.

Rather, he is helping the teachers individually, or in groups of two or three, to set their learning goals and go ahead to become better teachers, however they want to do it. One of the first things he did was to give them Wednesday afternoon off — for learning. He brought parents in to handle the kids. It sounds so obvious and so superior to having one day a year for "teacher development day."

The second suggestion, or implication, is to add "major personal change" to the curriculum -- at whatever level. And as I suggested earlier, this is in fact being done — mostly in an underground or back-door way. That is, an individual teacher gets turned on to the notion and introduces it to his or her class. The schools have often worded their aims toward self-development objectives like self-insight, inter-personal relationships, and even spiritual growth. But they haven't actually done much about it until now. This situation is changing rapidly. For example, there was a large project funded by the Ford Foundation, in cooperation with Esalen Institute, in which these methods were introduced into a school system.

Now a third implication is the mechanism suggested by Ivan Illich and Everett Reimer. As you know, those people have received most of the publicity for saying that the monopoly of the school system should be broken, that education should be more pluralistic, kids should have more choice of where and how they learn. They should not be forced to go to a single, monolithic institution. One of the main criticisms of Illich and Reimer is that they don't suggest alternatives. (Incidentally, I think the alternative that is to be feared the most is that educators will try to get their hands on the total range of adult learning and guide it, manage it, and stamp it with their seal of approval at the end.)

Illich and Reimer do make some specific suggestions. They mention three mechanisms--two of these have been implemented and the third one has not, as far as I know. One of these is a skill exchange and one has been started in Evanston, Illinois, which may be the best. The idea of a skill exchange is very simple. If I want to learn how to play guitar I dial this telephone number and say that I want to play the guitar. Then they give me the names and telephone numbers of two or three people who have phoned in earlier and said that they would enjoy teaching someone to play the guitar. I then meet with one or two or three of these people and decide which one I want to learn from. I might volunteer later to teach someone else. Usually the meeting takes place in a public building or a coffee shop, so that if people don't hit it off there is no great harm done. The system is very cheap and the idea has spread to at least twenty cities in Canada and the U.S.A. When I was in New Zealand last year I came across two cities that had set up learning exchanges and I know there are some in Australia.

Another suggestion is a "peer matching service." This occurs when you are not looking for a teacher -- somebody who is better than you -- but for someone who is at your level. If I want to improve my chess playing or my tennis playing, I might want to find a partner who plays at about my level. Or, I might want to find somebody to talk to about inflation or Watergate. The idea is to match people who can learn together as peers, not as one teaching the other.

Then there is a "directory of free-lancers" — people who will want to be paid to facilitate learning. I am not aware of this being done at all. The first two suggestions have been tried -- the skill exchange much more than the peer matching service.

A couple of other suggestions: these apply specifically to educational institutions. One of them is to increase the amount of choice and increase the amount of help for students. It has to be a two-sided thing. Our first step usually is increasing the amount of choice in how people learn. That is not so scarey to instructors -- saying to the student, "Here's what you have to learn but there are two or three paths to get there." The other kind of choice would be to give people freedom in what they learn; that is a little scarier unless limited to procedures like giving out a range of assignment possibilities or a list of topics for essays. One way to increase that a little is to make the last item something like, "Or any other topic chosen by the student and approved by the teacher." The way I do it in my graduate course in Toronto is to set boundaries about the subject matter. But that is about the only restriction I have on what people learn or how they learn. I simply say that they have to learn about this phenomenon, major personal change, for 130 hours, and then they pass the course. It's deceptively simple, and it seems to be fairly effective for me in that course with that subject matter. I'm not urging all insturctors to do it.

The students are creative in the ways in which they go about learning in that course. They read, of course. They also analyze their own learning and changes. Some will deliberately put themselves into the thing that they least desire to learn -- or something very threatening (during which they often keep a diary). They also interview each other. My impression is that the range of methods is actually greater when I give them freedom than if I were to try to make up the methods for them. And, of course, what they learn is also incredibly varied. It's a pass-fail course, so I haven't had much problem with grading. One or two persons probably cheat, but I am not planning to drop the system just because of that.

A final suggestion is to decrease the emphasis on credit. Our research found less than one percent of adult learning projects are conducted for credit. So, it is quite clearly demonstrated that people will learn for reasons other than credit. In fact Johnstone in the 1960's was also surprised at the comments on that (in Volunteers for Learning). But obviously if you look at self-planned learning and include that in the total phenomenon of adult learning, then the percentage done for credit goes even lower. It is the same way with kids. If you interview ten and sixteen-year-olds, you find that they are doing lots of learning outside of school. And a lot of it is self-planned. You do not need to motivate kids to learn. They are learning all kinds of things. I think that giving them credit is a way to get them to learn what the educators think they should be learning. And I'd like to see the children and their parents have more say about this, rather than leaving it almost entirely to the educators. Reducing the emphasis on credit could reduce the monopolistic aspect of education, including adult education.

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V. HELPING ADULTS TO LEARN

Alan B. Knox

More and more adults are discovering that if they are to become all that they want to be they must find ways to link action and knowledge. Modern adults work with knowledge as well as with things and people. The most successful workers, parents, and organization members have developed a repertoire of effective strategies for alternating between action problems and knowledge resources [20]. Thinking and feeling and doing continually intermingle as the adult seeks to maintain and enhance his selfhood, to find direction and fulfillment, to cope with the demands and constraints that confront him, to achieve understanding and mastery, to develop more creative and humane relationships with other people, and to become a fully functioning person [27, p. 288].

When adults enter a continuing education activity, they typically do so for several fairly specific reasons. Many are trying to educate themselves, to find answers to their questions, and to formulate more useful questions. They engage in learning in order to improve their ability to know and feel and act [17]. Those who successfully help adults to learn have a respect for their growth strivings and have ways to facilitate the process [27, p. 5]. The process of facilitating learning is basically the same whether the learner is somebody else or oneself. The process of planning and guiding adult learning is termed the mentor role. Persons who effectively serve as facilitators of learning are able to perform well in the main components of the mentor role. The five broad components of the mentor role deal with learners, setting, objectives, activities, and evaluation [20].

A learning episode may be a single period of coaching, a meeting with a small group of adult participants, or a session of an evening class. During a learning episode the function of the facilitator may be to give information, ask questions, discuss printed materials, or in other ways help the learner to achieve his or her educational objectives. During each learning episode in which someone enters into a helping relationship to facilitate learning, all five components of the mentor role are attended to. They may be attended to by the learner himself, by someone trying to help, or by both of them.

Facilitation of adult learning occurs throughout our society as people need to increase their competence and others try to help them. Adults try to change themselves in relation to all of their life roles [20]. They try to prepare for new job responsibilities, to cope with growing children, and to assume greater organizational leadership. Many institutions sponsor educational programs to help adults to change [12]. Schools and colleges offer evening and off-campus courses, employers provide job training programs for their employees, professional associations conduct weekend conferences for their members, and community organizations provide leadership training [16]. There are many ways in which people help adults to learn in these educational programs. Facilitators of learning make presentations, lead discussions, and arrange for demonstrations. Most of those who facilitate adult learning do not do so full time, and many are not primarily teachers. Most of the time they are nurses or lawyers, clergymen or homemakers, work supervisors or realtors, union leaders or nursing home operators.

This essay was prepared for those who have some experience helping adults to learn. It presents ideas that may contribute to a more effective helping relationship. The way in which the mentor role is best performed in a specific instance depends on various factors. Some are characteristics of the learners such as age, experience, and level of formal education. Some are characteristics of the educational program such as sponsor, subject matter content, and the specific facilitative roles that are included in the program. There are, however, some ideas about helping adults to learn that seem to apply in most instances [12]. This essay contains a selection of ideas from the organized knowledge related to the facilitation of adult learning. References to the relevant literature are included throughout and a selected bibliography is provided at the conclusion of the essay. Hopefully, the essay can assist those who perform the mentor role to alternate between some of the action problems that they confront and some of the knowledge resources that can help them to improve their performance.

Mentor Role

Successful facilitators of learning seem to have three types of understandings. They understand what is to be learned, they understand the learners, and they understand useful procedures to help the learners build on their present competencies to achieve their educational objectives. The people who facilitate learning most successfully not only understand each of the three quite well but they can put them together well [29].

A better understanding of the mentor role should result in more insightful identification of the major decisions to be made and a more effective approach to doing so. Most of these decisions cluster around five components of the mentor role, which deal with learners, setting, objectives, activities, and evaluation [20]. They are not steps but components whose inter-relationships must be considered, and the planning or improvement of a continuing education episode can begin with any component and proceed to relationships with each of the other components until all have been taken into account. Decisions regarding all of these components occur during both the planning and the conducting of educational programs and attention should be given to them throughout the process [12]. These components of the mentor role apply when someone is planning and conducting a learning episode for himself, for another individual, or for and with a group of adults.

Learner Characteristics - An adult is more likely to change if a gap is identified between his or her actual present behavior and a changed behavior that seems more desirable. The behavior may be knowledge, skill, attitude, or actual performance. It may be understanding how a car engine works, being able to rebuild a carburetor, appreciating the work of a skilled mechanic, or being able to do an engine overhaul. One way to specify desirable behavior is to define it as an attainable ideal as personified by people who perform it very well. The successful concert pianist serves as a role model for the music student. Their excellent performance can be compared with that of the potential learner in order to identify the gaps. This comparison serves two purposes. One is as a basis for the selection of educational objectives and learning activities to help close some of the major gaps. The beginning golfer watches the "pro" to help improve a stroke. The second purpose is to encourage the potential learner to become committed to narrowing the gap by a change in his behavior. Familiarity with the performance of an experienced realtor can inspire a beginning real estate salesman to study for his license. Someone who wants to facilitate adult learning can help to appraise educational needs by assisting the learner to understand the rationale, to use the procedures, and to recognize attainable standards of excellence to compare with his actual present performance. This component of the mentor role contributes especially to the setting of objectives. Background information about adults as learners, typical needs, and dynamics of learning can sensitize those who facilitate learning to ways in which their help is most likely to be effective [17;32;3;2;15;8;30].

Awareness of Setting - A learning episode for an adult typically occurs within a societal context that also influences his performance of his major life roles in family, work, and community. A second component of the mentor role is becoming aware of the major influences in the setting and harnessing some of them so as to increase the likelihood of personal growth and change. The service strivings in the membership of an institute for retired professionals results in members being not only the learners but also the facilitators of learning.

There are three types of contextual influences on continuing education that the learner should be helped to recognize and use. One type of influence is the set of criteria against which the effectiveness of continuing education is judged. Examples include increased professional effectiveness, improved family nutrition, greater participation in cultural activities, or higher employment rates. The learner can use these criteria as reference points for short term goals and assessment of progress [9;17;20;26]. Another type is the set of positive influences and resources that encourage participation in continuing education. Examples include a favorable image of continuing education, encouragement by program sponsors, and available educational materials. The learner can use these sources of encouragement as aids to progress and boons to motivation [28;16;26]. A third type is the set of negative influences that serve as barriers to participation. Examples include competing activities, high costs, fear of failure, and an overwhelming welter of possible objectives. The learner is more likely to offset these negative influences if he recognizes them [17;13].

Setting Objectives - The adult typically confronts far more gaps to be narrowed by continuing education than he can attend to. Priorities must be set, if only by default. The third component of the mentor role is the selection of objectives upon which to focus continuing education activities. The selection process includes a review of sources of objectives and a listing of the major objectives that might be attended to. Sources of objectives include analysis of their own role performance, opinions of peers, consideration of current personal and social issues, and recommendations of experts. The selection of objectives in which to invest time and attention typically takes into account the desirability of closing the gap and the feasibility of doing so, even with assistance [32;17]. A middle-aged learner may decide that learning to play chess has the highest priority as an educational objective at the current stage of his or her family and occupational life cycle.

Someone who helps to facilitate the learning of another adult confronts the additional task of achieving a satisfactory match between his own expectations and those of the learner. Although a facilitator of learning may have a greater understanding of that which is to be learned, the expectations of the facilitator should not be imposed on the adult learner. Instead, the early part of each learning episode should be devoted to objective setting. A typical procedure is agenda building for the session. In the process of agenda building, consensus is achieved. When there is substantial agreement and objectives are straightforward, the objective setting phase may take but a few minutes. Up to one-third of the available time can be devoted to objective setting and still accomplish more learning achievement than when objectives are inadequately understood and agreed upon.

Learning Activities - The most evident component of the mentor role deals with the learning activities themselves. Learning occurs mainly as a result of an interaction of individuals with new information or experiences. This interaction typically takes the form of activities such as reading, listening, writing, discussing, and viewing. These activities have been developed singly and in combination in dozens and dozens of learning methods [1;16;22;23;27].

This component of the mentor role consists of the selection and organization of learning activities to achieve the educational objectives and to fit the learning style of the individual learner. Some learning activities are more likely to enable the learner to develop a competent level of performance and the commitment that results in a "refreezing" of new habit patterns and subsequent utilization of the new area of performance. These types of learning activities usually include opportunities for the learner to practice the new area of performance in settings similar to actual performance. Examples include role playing and case analysis.

The main criterion for the selection and organization of learning activities is the achievement of the specific educational objectives that were selected as of high priority. This fitting of activities to objectives should take into account both the content being learned and the behavior to be changed [32, p. 28-30]. Another criterion is the fit between learning activities and the learner's preferences and style of learning [33]. Some adults strongly prefer to encounter a highly structured presentation by an acknowledged authority, such as a recorded lecture on a tape cassette. Some other adults strongly prefer a less structured way of exploring the same content, such as an informal discussion with knowledgeable peers. If each is able to use materials and activities that fit his preferences, it is likely that motivation and the learning outcomes will be greater.

Evaluation - The remaining component of the mentor role is the process by which persons associated with the educational activity make evidence-based judgments about effectiveness in ways that encourage use of the conclusions to improve the educational activity [18]. These judgements are made by the learner himself and by those who try to facilitate his efforts. The main type of judgement is a comparison between expectations and performance. Did the homemaker learn as much about nutrition as she expected to? There are several aspects of the educational activity that might be the focus of evaluation. Was the scope of the educational objectives too broad, too narrow, or just about right? Did the gaps that were identified turn out to be among those with the highest priority? Were the learning activities planned so that they fit well with other commitments and personal preferences? Were the benefits of the continuing education activity worth the investment of time, money, and effort?

In the remainder of this essay, each of these components is considered in turn. The component on learners is divided into two sections, one on dynamics of learning and one on awareness of needs. The component on learning activities is divided into two sections, one on selection from the range of activities and one on the organization of learning activities. In each of the resulting seven sections that follow, major ideas have been selected from the organized knowledge regarding continuing education of adults. Following each of these major ideas, there are suggestions about ways in which the ideas can be used to facilitate learning by adults. The concluding section of the essay suggests ways in which mentor role performance can be improved by those who facilitate adult learning.

Dynamics of Learning

In trying to better understand adult learners, it seems helpful to consider two bodies of knowledge dealing with learning and with needs [3;8]. The body of organized knowledge dealing with learning includes generalizations about the conditions under which adults with various characteristics learn effectively [15;5]. The body of organized knowledge dealing with awareness of needs appraisal includes generalizations about the types of needs that most adults have in educational activities, which transcend the needs of a specific adult or group of adults that relate to the specific educational objectives. This section contains generalizations about adult learning and the subsequent section contains generalizations about awareness of needs.

Performance - Adult learning usually entails change and integration of knowledge, skills, and attitudes to produce improved performance. Adults typically engage in a continuing education activity because they want to use what they learn soon after they learn it. There are small adult life cycle shifts from an emphasis on acquiring skills in young adulthood, to knowledge in middle age, and to attitudes as adults grow older. Therefore, those who help adults to plan and conduct a learning episode should give attention to the most desirable mix of emphasis on changes in knowledge, skills and attitudes as intended outcomes. For example, in some episodes the intent is to acquire an appreciation of modern dance while in other episodes the intent is to develop skill in dancing.

Motivation - The motives that cause an adult to devote his time and attention to a learning episode are and should be a major determinant of learning outcomes. Because participation is voluntary, if the activity does not fit his expectations the adult will typically withdraw. The educational goals, sources of encouragement, and barriers that characterize an adult's life space shape his reasons for participation. Motives are multiple and varied in their specificity and in the extent to which the learner is aware of them. Overly intense motivation becomes anxiety which interferes with learning. Therefore, those who facilitate adult learning should provide freedom for the learners to creatively explore within democratic limits, should encourage them to go beyond the meeting of apparent needs, and should facilitate efforts by learners to set realistic educational objectives for themselves.

Meaning - Adult learning is more effective when it entails an active search for meaning and discovery of relationships between current competence and new learnings. Active participation in learning includes interaction with realistic and relevant materials, which does not necessarily require overt action but may consist of looking and listening. Interaction with realistic educational materials facilitates both motivation and application. Recall is best when material is learned in a context that is similar to the one in which it is to be used. Because of the wide range of individual differences between adult learners, varied learning activities may be required to achieve similar objectives. There is an adult life cycle shift in general personality development and major role changes from a concern with occupation and growing family by young adults to broader historical, philosophical, and social issues by older adults. Therefore, to effectively facilitate adult learning it is important to respect and understand the unique search for meaning of each learner as a basis for helping him to interact with relevant materials and activities. The learner is in a unique position to select materials that are most relevant and to suggest the new learnings that would build best on current competencies.

Experience - An adult's prior experience influences his approach and effectiveness in a learning episode. Between twenty and sixty years of age the range of individual differences increases. Prior learning may facilitate, interfere with, or be unrelated to new learnings. With age, the unlearning of skills becomes more important. Higher levels of education typically provide more extensive cognitive structures that facilitate mastery of conceptual tasks. The adult with a master's degree that includes political science and economics courses is likely to have acquired some general concepts about our political and economic system that can undergird the new ideas that he confronts in a management development program on current social issues. Disuse of learning skills for many years results in reduced learning effectiveness, part of which can be restored by participation in continuing education. Therefore, the design of effective learning experiences for an adult should take into account his individual background and establish connections between the new learnings and his relevant prior knowledge and experience.

Ability - Learning ability is relatively stable between twenty and fifty years of age, with gradual decline thereafter; abilities that are associated with adult experience, such as vocabulary, are best maintained and enhanced. The adults who are initially most able tend to increase their ability slightly while those who are initially least able tend to decline in ability, so that the range in abilities increases with age. Adults with the greatest learning ability tend to learn more rapidly and to more readily learn complex tasks. Longitudinal studies based on data from the same people collected at succeeding ages indicate less decline than cross sectional studies based on data from people at various ages collected at the same point in time. For some older adults, ill health may substantially reduce learning ability. Therefore, those who facilitate adult learning should make careful estimates of the learning ability of individual adults, and take this estimate into account in setting objectives and planning learning activities.

Memory - An adult's ability to remember information to which he is exposed depends on the strength of the registration and on the factors operating to erase the registration. The strength of registration depends on intensity, frequency, and importance to the learner. The factors that erase the registration include the passage of time and the activity that follows the exposure. Both learning and forgetting are associated with learning ability, physical condition, and cognitive structure. With increasingly older age groups, a higher proportion of adults experience memory impairment in which it takes longer to register impressions and in which memories decay more rapidly. Pacing is especially important for immediate recall by older adults. Recall is best under conditions that are similar to the original registration. Therefore, those who help adults to learn should help to design learning activities that optimize both acquisition and retention.

Condition - An adult's ability to learn can be substantially reduced by poor physical and mental health. The former can be caused by both gradual decline into old age (e.g., hearing loss) and temporary problems (e.g., a bout of flu). The decline for older adults in ceiling capacity of sensory input, especially vision and hearing, can affect learning. Much of this decline before very old age can be corrected for by glasses, better illumination, hearing aids and sound amplification. Some physical health conditions, such as circulatory disease, reduce learning functions such as memory. Some mental health conditions, such as anxiety, produce physical changes that interfere with learning functions such as concentration and memory.

Older adults who are in excellent health and condition learn better than most middle-aged adults. Therefore, those who facilitate adult learning should help to create a learning environment and procedures that minimize the extent to which problems of poor health and condition interfere with learning, such as providing excellent illumination without glare, sound amplification, and minimum stress for older learners.

Pacing - Adults typically learn most effectively when they set their own pace, when they take a break periodically, and when the distribution of learning episodes is fitted to the content. Adults vary greatly in the speed at which they learn best. Older learners tend to reduce speed of learning and to give greater attention to accuracy. If an adult is forced to proceed much faster or slower than his preferred pace, his learning effectiveness typically declines. For older adults, much of the decline in educational performance is attributable to a deficit due to speed instead of a decline in learning power. Therefore, learning activities for adults should be planned so that each adult can discover and proceed at his optimal pacing.

Complexity - An adult typically learns best when the learning task is complex enough not to be boring but not so complex that it is overwhelming. If this is done, it tends to minimize initial mistakes that sometimes have to be unlearned. Older adults especially tend to learn more difficult tasks less well and are more readily overwhelmed by irrelevant information. Therefore, persons who facilitate adult learning should build more complex learning tasks on more simple ones and simplify more complex tasks by use of materials such as diagrams, models, and written instructions.

Content - The process of effective learning by adults varies with the content or nature of the learning tasks. For example, practice and rehearsal are essential for skill mastery and memorization; social or verbal learning that entails consolidation or reorganization of previous learning can be accomplished in a few trials; a specialized diagnostic procedure can be effectively learned by self-directed learning activities with the procedure, and more effective interpersonal relations are typically best learned in a group setting. Therefore, those who facilitate adult learning should consider the nature of the learning task and take into account the dynamics of learning that apply especially to that type of task.

Feedback - Adults learn more effectively when they receive feedback regarding how well they are progressing. This applies to learners of any age. Knowledge of the standards of excellent performance provides a goal for learning efforts. Knowledge by the learner of his performance helps the learner to locate himself with regard to progress in the educational activity. If the feedback is discouraging to the learner, consideration should be given to modification of the learning task. Immediate feedback, recognition, and reward help to shape and reinforce new learning. Positive reinforcement (reward) is far more effective than negative reinforcement (punishment). Therefore, effective procedures to facilitate adult learning should include feedback regarding the progress he is making to close the gap between current and desired performance.

Adjustment - Adults typically learn less well when they experience substantial social or personal maladjustment. Such maladjustment is usually associated with anxiety and defensiveness and should not be confused with moderate levels of arousal and motivation. When an adult believes he can deal with a situation it may be a challenge; when he does not it may be perceived as a threat. Adults deal best with the failures they confront in learning situations when they have experienced many successes. Adults with few recent educational experiences tend to be most apprehensive about the fear of failure and most discouraged by the experience of failure. Therefore, those who facilitate adult learning should provide support and guidance, minimize maladjustment, and especially emphasize learning success by adults who are less familiar with continuing education.

Those who want to effectively facilitate adult learning should consider these generalizations about dynamics of learning and reflect on how they relate to their own practices in helping adults to learn. It should be reassuring if generalizations and practices are consistent. If they are inconsistent, reflection will often suggest ways to improve practices [6;17;21;27;28;31].

Awareness of Needs

In addition to the dynamics of learning, the effective facilitator of learning understands a second characteristic of adults: needs. Those who facilitate adult learning will be more likely to be effective if they are alert to the needs that influence participants in continuing education generally. In this section of the essay, some of the organized knowledge regarding educational needs of adults is reviewed. This information is grouped in relation to four concerns of those who facilitate learning--attraction, intake, support, and retention [3;4;8;10;13;17;24;26;27;28;33].

Attraction - Most adults who decide to participate in an educational activity do so because the several influences that encourage them to do so are collectively stronger than the several influences that discourage them. An adult participates in an activity because he prefers it to something else. For example, an evening course on conversational French seems preferable to a bridge club. To even consider an educational activity, an adult must first know about it. An adult is more likely to pay attention to information about a continuing education activity if he receives two types of messages. One is about the extent to which a program deals with a topic that impinges importantly on the life of the adult. The young wife who is expecting her first child suddenly becomes interested in many sources of information about baby care. No relevance, no interest. The second is about the extent to which participation in the adult education program would be likely to make a difference in the way in which the adult relates to the topic or domain of life. A series of sessions on baby care must contain new information.

Typically the decision to participate occurs only when both types of information are encouraging. For such information to be received, it must be available through channels that the adult uses to seek information about education. Thus, adults with little formal education are unlikely to know someone who is already participating in the educational program and are not likely to attend to the mass media as a source of information about educational decisions [13].

Some of the facilitators of participation are mainly personal and internal to the potential learner and some are situational. Some of the personal influences are reasons for participation of which the learner is aware [12;31]. The major reasons are listed below:

1. To achieve a personal occupational goal (new job, job improvement, prepare to teach)
2. To achieve another type of personal goal (organizational leadership, gain attention)
3. To reach a social goal (help children study)
4. To reach a religious goal (understand doctrine)
5. To understand (satisfy curiosity, satisfaction from knowing)
6. To participate in social activity (enjoy being with participants)
7. To pursue personal fulfillment (enjoyment of learning activity)
8. To meet formal requirements (prepare for examination, make up for missed formal education)
9. To escape (captive wives, troubled youth)

In addition to such explicit reasons, the decision to participate is influenced by pervasive motives and needs such as need for achievement. Other personal facilitators include liking for school, interest in ideas, and reading orientation. Situational facilitators include encouragement by friends, work experiences and expectations that emphasize more education, and high congruence between learner aspirations and educational program objectives. A source of heightened readiness to learn is the individual's reaction to major role change events such as birth of the first child, job change, move to a new community, retirement, and increased organizational responsibility.

Barriers to participation include lack of time, lack of money, lack of confidence, scheduling conflicts, and problems of transportation.

In summary, the likelihood that an adult will decide to participate in a continuing education program is associated with his perception of the following factors:

1. The importance to him of the aspect of life to which the educational program relates (job improvement, helping children).
2. The extent to which he wants to increase his competence in relation to the aspect of life (become more effective in organizational leadership roles).
3. The extent to which education is seen as an effective way to increase competence (belief that more effective interpersonal relations can be systematically learned).
4. The fit between his life-style and the anticipated patterns of program participation (the general program image is one for people like himself).
5. The balance between the anticipated benefits and the anticipated costs of participation (that which will be learned about accounting is worth the tuition and time spent).
6. The external sources of encouragement (significant others think it's a good idea).

Intake - Especially for adults without much recent experience in educational programs, their initial encounter with a learning episode typically has a major impact on their success and persistence. Those who facilitate adult learning confront two challenges during this intake or orientation period. One challenge is to help the learner to feel accepted and welcome in the program. The second challenge is to assist the learner to achieve at least one important educational objective. Such an initial social and educational success can do much to offset some of the difficulties that typically accompany most efforts to change.

Although those who would be most anxious in an unfamiliar educational activity seldom enroll, many adults who do enter the experience do so with an apprehension of the unknown and a fear of failure. One of the basic needs of most people is to maintain and enhance their self concept. For many adults the image of the student role based on their earlier school experience is a subservient one which seems incompatible with their image of responsible adulthood. For older adults, this image is often combined with an erroneous belief in a major decline in learning ability with age. An effective facilitator who helps an adult learner to have an initial success experience does much to increase the learner's sense of educational efficacy and his confidence in his learning ability. There is, however, wide variability among adults in their optimum level of arousal or stimulation. This makes it doubly important that the facilitator have a counselor or tutor orientation.

Learning success and individualized stimulation can assist adult learners to become more venturesome and attentive in a learning episode. An older adult who has achieved some success and recognition in a series of learning episodes is likely to seek more ambitious educational objectives. The purpose of the intake process has been achieved when the learner has recognized his need to know and has acquired sufficient feelings of security to venture to change [27]. Sometimes by discussing past learning episodes and by talking about plans for the learning episode being started, the inexperienced learner can better understand the total process by which the facilitator can help him to learn. In some instances, the intake process can help to unfreeze the thought and habit patterns so that the adult participant becomes more receptive to change and identifies questions to be answered and problems to be solved.

Support - Many adults need some support and encouragement throughout a learning episode. This is especially so for adults whose amount and recency of formal education is quite limited. Recognition and reward are important and they can be provided by other participants and by a facilitator. The greatest support often results from the achievement of small successes. A facilitator can increase the likelihood of such success experiences by aiding with realistic goal setting and by aiming for multiple outcomes in case some don't materialize. For some adult learners, a growing recognition of usefulness of their increased competencies can be very supportive. A facilitator can provide support by attending to individual participants, to small groups with similar needs, or to an entire group.

A major way in which a facilitator can provide encouragement and support is to minimize the extent to which the learner has failure experiences and to help the learner to learn from them when they do occur. Ways to help minimize failure are to allow learners to progress at their own rate, to use the learner's prior performance as the reference point for evaluating progress, to work through mistakes with the learner when they do occur, and to use gentle humor to soften learner concern about errors. Other participants can also provide much group support. Such emotional encouragement and social support can help learners to maintain and enhance their self concept at a point when those with little recent educational experience are likely to lack confidence. Often, by performing some of the tasks of the mentor role for himself or other participants, a learner can become more confident and assured.

Retention - To attract an adult to an educational program only to have him drop out right away is worse than never having established contact because usually the residue of disappointment and feelings of failure will make it more difficult to attract him the next time. Those who facilitate adult learning can achieve a higher retention rate if they understand the processes of persistence and withdrawal. The retention rate, consisting of the percentage of those who enroll who successfully complete the program, varies greatly with the type of continuing education program. The typical retention rate is as high as ninety-five percent for a one-semester university graduate evening course, will range between fifty and eighty percent for many programs, and may be less than twenty percent for some home study programs with indefinite time limits and little external encouragement.

The likelihood of a high retention rate is associated with a careful match between participant aspirations and program characteristics, participant's level of education, participant's investment in the program (monetary and psychic), and shortness of program. Outside influences such as family problems, work conflicts, and disinterest or discouragement by friends tend to lower the retention rate. Influences such as liking for learning activities and facilitators and participants, and a sense of accomplishment, tend to increase the retention rate. In general, about half of the participants who withdraw before successful completion do so for reasons unrelated to the educational program. This reflects the higher priority that most adults assign to responsibilities in family, work, and community than to educational participation. Some programs have flexible scheduling arrangements to accommodate these competing demands. In some programs, tactful reminders to those who miss a session help to express interest and raise retention. It takes just a few minutes to write a few post cards or make a few phone calls each week.

If a program has a much lower retention rate than anticipated, program evaluation procedures should be used to find out why and to make program improvements where feasible. Detailed information from a sample of former participants who dropped out can be used by a facilitator to identify changes that might increase the retention rate.

Setting

Effective learning episodes for adults are not planned and conducted in the abstract but occur for specific learners, within the context of specific times, locations, and circumstances. The facilitation of adult learning should take this setting into account. In doing so, attention should be given to characteristics of the sponsor, other participants, scheduling, and the setting in which increased competence is to be applied [12;16;9].

Most adult learning episodes that entail a facilitator also entail a sponsor such as an educational institution, an employer, a professional association, or a religious institution. Such a sponsor has resources, constraints, and expectations that should be considered by a facilitator. The resources include resource persons regarding both content and process; educational materials and equipment such as books, films, and audio tapes; facilities such as classrooms and laboratories; and opportunities for practicum experiences. Facilitators should be aware of the available resources so that they can select those resources that best fit program objectives and learner characteristics. Sponsors also impose constraints, such as location, timing, admissions requirements, and minimum standards for successful completion. Facilitators should consider such constraints so that they do not unnecessarily restrict program development. Sponsor expectations are reflected in public statements, program priorities, staff selection, as well as in statements of program objectives. These expectations can serve as guidelines for the planning or modification of a specific learning episode.

The characteristics of the other participants provide another important part of the setting for group learning activities. As the number of other participants increases, so does the program complexity for the facilitator, but so also does the range of resources that the individual learner has potentially available from the other participants. The range of individual differences within most adult groups is great, and becomes greater with age, at least until age sixty. These differences include most characteristics related to learning including learning ability, interests, temperament, relevant experience, level of education, and recency of education. By use of selection criteria and by use of sub-groups of similar participants, a facilitator can increase the similarity of the adult participants with whom he works at a given time. However, for some programs in which participants can learn much from each other, it may be desirable to increase the range of individual differences.

The setting often includes restrictions or traditions regarding scheduling. When this does occur, it tends to specify a sequence of learning episodes within which the total educational program is planned. For example, in some agencies, a series of about fifteen weekly sessions of three hours duration is almost standard. In centers for continuing eduation, the three-day residential conference is typical. When the total time allocation is set, this "given" tends to specify the objectives that are likely to be achieved in the available time. Even when the total time is not set, a balance is usually struck between the benefits that can be achieved in terms of breadth and depth of coverage, and the costs in the form of time spent by participants and facilitators.

Some continuing education programs take place in the same setting in which the participants can apply what they learn. Examples include on-the-job training, organization development programs sponsored by employers for their employees, an educational program for residents of a home for the aged, or a clinical seminar related to an action setting. Especially in such instances, a facilitator should carefully analyze such settings as a source of needs, evaluation of progress, and evidence of accomplishment.

Setting Objectives

The facilitation of adult learning is more likely to be effective if there is at least moderate similarity between the aspirations of the learner and the purposes of the facilitator. The setting of educational objectives is the process by which a satisfactory congruence of expectations is achieved.

Most adults enter a learning episode with some aspirations and expectations. One function of a facilitator is to help the learner to consider the range of educational objectives from which to select those on which he will focus. The facilitator is often aware of objectives that the learner may eventually recognize as more important to him than the objectives that brought him to the learning episode. A helpful way to encourage the learner to consider a wider range of objectives is to discuss the possible outcomes or benefits that the learner anticipates along with the expectations of other learners in similar educational programs. In a group session, this can be accomplished by the process of agenda building. The participants and the facilitator each mention the topics that they would like to discuss or the competencies that they would like to acquire. The resulting list tends to be broader than any one member of the group would have produced.

Such a list of topics or objectives is usually more extensive than the time available for the learning episode so some selection is needed. In the process of agenda building, the list of topics or objectives can be reviewed with the group of learners and those topics selected which are of the greatest interest for the most participants. Other criteria that a facilitator might use in the selection of objectives include the purposes of the sponsor, the prior experience of the participants, the opinions of experts, and his own convictions about the relative importance of topics and objectives. Two benefits of heavily involving participants in this process are that they gain experience in the setting of realistic objectives, and that they are more likely to have a strong commitment to the achievement of the objectives.

A clear statement of educational objectives reflects the behavioral changes that the learners expect to experience. In some instances, the clarification of the ways in which an adult wants to change and a commitment to do so may be the main ingredients in making the change. Behavioral objectives reflect both the content that is to be learned (real estate practices, food preparation, weaving, or philosophy) and the type of behavioral change that is to occur (appreciation, familiarity, understanding, analysis, skill). If the educational objectives are clear at the outset of a learning episode, the learner can be more self-directed in guiding his own learning activities.

It is appropriate that objectives change during the course of an educational program. The learner is engaged in a search for meaning. As he learns more about a topic, his new insights can cause a shift in the focus of his learning interests. An effective facilitator should periodically encourage the learners to consider their educational objectives as they proceed. This is especially important for longer educational programs that consist of a series of learning episodes [32;6;8;12;20;28].

Learning Activities

There are many learning activities from which a learner and a learning facilitator can select. The selection depends on the educational objectives, learner characteristics, and the shifting emphases that should occur as part of the flow from the beginning to the middle to the end of a learning episode or series of episodes. This flow should typically reflect the desirability of modifying old habits and gaining commitment to change at the outset, achieving change during the main part of the episode, and developing commitment to maintenance and use of the new competence as the culmination of the program.

While all or most learning activities that are commonly used emphasize the relating of new learnings to adult experience, they vary in the purposes for which they are best suited. The seminar is effective for the rigorous analysis of ideas. The workshop builds well on the experiences of group members. The case study facilitates analysis of process. Buzz groups provide a quick way to obtain a listing of preferences, reactions, or questions. Role playing provides an opportunity to experience and analyze both the dynamics of an interpersonal situation and the feelings that are aroused under these circumstances. Sensitivity training helps the learner to better understand the way in which he functions in group settings. The in-basket procedure provides a standard exercise for the analysis of decision-making procedures. Facilitators of learning are more likely to select the most appropriate method if they are familiar with the available range.

Adults seek to achieve educational objectives within four types of settings in which the teaching-learning transaction occurs: individual, temporary group, organizational, and community. The individual setting includes correspondence study, ETV courses, and one-to-one coaching or counseling. The temporary group setting includes the typical evening class in which adults without previous contact assemble for the class each week and at the end of the course go their separate ways. The organizational setting includes in-service training for work groups in which the prior and subsequent working relationships between the learners have a major influence on the program. The community setting emphasizes working relationships between different organizations and segments of a neighborhood or community. Within each of these four settings, the balance of responsibility for planning and directing the learning experience may rest with the facilitator, or with the learner, or at some intermediate point of shared responsibility. In combination, these two dimensions of setting and locus of responsibility provide a basis for the classification of types of teaching-learning transactions that is provided in the following table. The illustrative methods in each of the cells of the matrix do not occur exclusively in that category but instead typify the characteristics of the category.

Table: CLASSIFICATION OF CONTINUING EDUCATION LEARNING-TEACHING METHODS

SETTING	(Primary responsibility for planning and directing learning activities)			
Category	LEARNER	LEARNER (facilitator)	FACILITATOR (learner)	FACILITATOR
INDIVIDUAL Interpersonal	group visits	non-directive counseling	supervisory coaching	Psycho-evaluation demonstration
Mediated print	self-directed reading on topic	library readers advisory service	correspondence course	How-to-do-it book
Electronic	select related films, TV programs	film forum	TV course, with materials, phoning	TV course, no materials
TEMPORARY GROUP Small	study-discussion	brainstorming, seminar, workshop	case study, role play	lecture-discussion, process demonstration
Large	problem clinic, buzz groups	listening panel, lecture from problems presented	lecture-questions, interview resource person	lecture, forum, panel, symposium
ORGANIZATIONAL Small	informal staff study groups	staff meeting series on organizational problems	training sessions for work teams	discuss management consultant's recommendations
Large	organizational self-study	educational community development, organizational conference	action research	members react to proposal for organizational change
COMMUNITY Small	community problems discussion group	action seminar	demonstration project	technical briefing of community leaders on issue
Large	field trips to other segments of community	result demonstration	community survey	lecture series on community problems

Most learning episodes include the use of some educational materials. In some episodes, such as a correspondence course lesson or a programmed instruction chapter, interaction with the materials constitutes the main vehicle for learning. In some episodes, such as sensitivity training, the emphasis is on interaction with other people. In these episodes educational materials, such as orientation sheets or reaction forms, perform a supplementary function. Persons who facilitate adult learning can use educational materials to develop and focus interest, to assemble pertinent information to which the learner can refer, to help to structure practice and rehearsal activities, and to assist the learner to visualize or conceptualize the basic parts of that which is to be learned. Educational materials should clearly convey the basic ideas without extraneous and sometimes confusing detail, and they should allow individualization. One way to achieve individualization is to allow the learner to select items that are especially relevant. Another way is to use materials in relation to a tutorial role such as coaching in which the tutor helps the learner to adapt the materials for his own use. Persons who facilitate adult learning should plan educational materials so that the learner has greater freedom to learn, not less.

A main criterion for the selection of learning activities is the set of educational objectives to be achieved. For example, if the objectives predominantly entail acquisition of information, then the learning episode should include activities such as discussion or testing to discover the learner's existing cognitive structure related to the topic and viewing a film or reading a book so that the learner can build new information on his current knowledge. If the objectives are predominantly skill development, then the learning episode should include activities such as simulation or coaching so that the learner can practice the skills he is trying to develop. If the objectives are predominantly attitudinal change, then the learning episode should include activities such as discussion or role playing so that the learner can explore his feelings and those of others in a climate of stimulation and social support that is conducive to change of attitudes. Persons who facilitate adult learning should understand which types of activities tend to be most effective for the achievement of various educational objectives and help the learners to select those activities that best serve their purposes.

Organizing Learning Activities

After the selection of learning activities that fit both the objectives and the learner, the next step is to organize the learning activities so that the learner progresses well through them and achieves the objectives. This organizing process of the mentor role is as much aesthetic as scientific. The scientific aspect includes generalizations about the conditions under which learners in general learn most effectively. The aesthetic aspect includes attention to the conditions under which specific learners will be encouraged to engage in the learning activity. In doing so, the learner should consider both the way in which he or she prefers to organize the sequence of learning episodes, and the main factors that contribute to effective learning by adults.

Adults vary greatly in their learning styles and these variations are partly associated with personality. An adult is likely to learn more effectively and to persist longer in the series of learning episodes if the organization of learning activities fits his preferred learning style. Some learners have a very orderly and explicit and initiatory learning style; some depend heavily on external authorities to set goals and provide structure; and still others have an intuitive and almost groping learning style that seems disorderly to others. Because of the great variability in characteristic learning styles, it is well to encourage learners to reflect on their previous approaches to learning that have been most satisfactory and satisfying and to incorporate major elements of those approaches in the way in which they organize their own learning activities. There are, however, three principles that might be considered as the learner makes decisions about the organization of his learning activities so as to optimize progression, application, and gratification.

The first principle of organization is progression [32, pp. 62-64]. The achievement of educational objectives typically requires persistence in learning activities over a period of time. Persistence is more likely if the learning activities have a sense of coherence and sequence and forward movement, in contrast with brief and unrelated learning episodes.

A useful way for the learner to achieve continuity and persistence and progression in learning activities is to select a theme of personal importance to use as an organizing principle. The prime sources of such themes are those areas of life in which there are major gaps between current performance and the performance toward which the individual aspires. Such gaps are likely to occur when adults cope with role changes such as starting a new job, the youngest child's leaving home, moving to a new community, or retirement. At the time of such change events, the changed performance to which the adult aspires can serve as a convenient reference point for planning. The performance of persons who are now doing what the learner wants to be able to do can be analyzed and divided into components to be mastered by the learner. Sometimes it is best to work backwards from the final performance to the main components upon which it depends. In deciding on a series of learning episodes, decisions should be made about which ones are the most useful prerequisites for other episodes.

The second principle of organization is application. In continuing education, the main reason for behavioral change is to be able to apply the increased competence in the form of improved performance. The likelihood of application is greater if new topics are studied in relation to the context in which they are to be applied. This concern for application is important, regardless of whether the emphasis is on the acquisition of organized knowledge, on improvement of action in daily life, or on interrelationships between knowledge and action. In one approach to the organization of learning activities, the focus of the educative activity alternates between study of adult life activities and study of relevant knowledge. The learner initiates the series of learning episodes either with the identification of an action problem or with information from literature or peers that alerts him or her to a probable problem. This episode is followed by episodes in which the learner studies several areas of organized knowledge that seem to be most useful for a better understanding of the action problem, and then uses the resulting insights to redefine or further specify the problem. With the greater specification of the problem, the learner can proceed to seek information from the literature or from peers or from personal records that suggests alternative solutions to the problem. The specific problem can next be examined as a basis for deciding which solution seems most applicable. Again literature and records can be consulted to help develop a detailed course of action to achieve the solution. In the process of implementing the solution, the learner can reflect on progress and make adjustments as called for with a diagnostic problem-solving approach to the organization of learning activities. In this way, the learner's continuing search for meaning and understanding alternates between study of the action problem and study of organized knowledge related to the problem [20].

The third prinicple of organization is gratification. To be sure, if a learner persists in a relevant educational activity, it is likely that the experience is gratifying in some way. But in what way? There is mounting evidence that adults who participate in the same continuing education activities do so for some quite different reasons [12;31]. Although people participate in important activities for multiple reasons, one or perhaps two typically predominate. Some of the dominant reasons are expressive and the benefits to the participant are directly related to the learning activity itself. Examples include interest in the subject matter content, enjoyment of the learning activity, and interaction with other people who are related to it. Some of the dominant reasons are instrumental and the benefits to the individual are realized as he uses the learning outcomes to achieve external purposes. Examples include use of increased competence to achieve a personal goal such as through a career change, and use of increased understanding to help others. The learner can use this principle to organize learning activities so that they provide a sufficient amount of the types of gratification that are personally important. Someone who facilitates adult learning can use this principle to help the learner to reflect on and to emphasize the types of gratification that he or she wants to obtain from the series of learning episodes.

Learners can also contribute to the effectiveness of the learning activities in which they engage, by performing the aspect of the mentor role that takes into account conditions of effective learning. Learners may consider conditions of effective learning when they review their learning plans, and also from time to time when engaging in the learning act.

Listed below are some of the major questions that a facilitator might ask learners in order to help them decide if there are additional ways in which they could modify the organization of learning activities to achieve greater effectiveness.

1. Has the learner assumed sufficient responsibility for the major decisions about personal educational needs, priority objectives, content emphasis, and types of learning activities?
2. Is the organized knowledge to be studied relevant to the solution of action problems?
3. Does the context in which the learning is to occur sufficiently resemble the context in which the changed performance will occur?
4. Is there sufficient provision for feedback so that the learner will receive knowledge of results?
5. Are there sufficient intrinsic incentives and satisfactions?
6. Is the physical and social setting for learning at least minimally conducive to success?
7. Have crucial external educational resources been utilized?

In planning and conducting educational programs for groups of adults, a facilitator of learning must decide on the amount of structure and organization that is appropriate, and how readily to make changes as the program proceeds. For many learning episodes it is helpful to have some plan, but to review the plan with the learners. The outcomes of early episodes in a series often have implications for subsequent episodes. As plans are reviewed and revised the planning process is intermixed with the process of conducting the educational program. It is for this reason that the phrase "program development" includes both planning and conducting learning episodes.

Evaluation Procedures

Self-directedness in most activities requires objectives and conviction and effort and also evaluation. Without feedback from evaluation the individual has difficulty knowing whether or not he's making progress. Knowledge about progress encourages perseverence. Knowledge about inadequate progress provides the basis for making changes to improve progress. To evaluate progress, it is helpful to know where you are and where you're going and to have some standards by which to judge whether the changes that occur constitute adequate progress. This applies especially to the function of evaluation in continuing education.

Evaluation consists mainly of two activities, describing and judging. The facilitator who wants to evaluate adult learning should prepare three descriptions. One is of the current characteristics of the educational activity. A second description is of the intentions regarding the educational activity. The third is of the standards that are useful to interpret any disparities between intentions and actuality. The standards can include normative data and descriptions of the performance of adults who outstandingly achieve the objectives.

In the evaluation of an educational episode or series of episodes, each of these descriptions might helpfully be divided in three parts. One part is the inputs at the start, such as the learner's beginning level of competence, available materials, and amount of time allocated for education. A second part is the educational process. The third part is the educational outcomes, such as knowledge, skills, attitudes, competence, performance, and benefits to others at the end of the educational activity that might be attributed to the educational process.

Judging consists of making two types of comparisons. One is between intentions and actuality. This comparison helps the learner recognize how well his plans measure up to his performance. He may discover that he intended to spend twenty hours on a learning episode but actually spent thirty. He may also discover that he intended to divide learning time about equally between reading and discussion with peers but actually spent all of it in discussion. The second comparison involves gaps between intentions and actuality, and information about the educational activities of other people that can serve as standards against which to interpret the changes that occur. The learner may discover that a small change in competence is more than most persons accomplish through continuing education. He may find no gap between his performance and his intentions, but discover that both are far below the level of performance of most of his peers--the result of a low level of aspiration.

The reason for evaluation is to make judgments about effectiveness of the educational activity so that the conclusions can be used to improve the educational activity. The major gaps between intentions and actuality indicate points at which the learner can concentrate his efforts to improve the educational activity. The comparisons between gaps and standards indicate the types of efforts that need to be directed at the most important gaps, such as changes in level of aspiration or changes in methods. The descriptions of current circumstances indicate the foundation upon which improvement efforts can be built. The learner can use the resulting conclusions to continually improve his continuing education activities so that their benefits are greater than the investment [18].

The evaluation component of the mentor role is at once comprehensive and selective. The learner should have a procedure by which he can quickly obtain a comprehensive view of how well his continuing education efforts are progressing. He also needs a procedure by which he can evaluate in some depth those aspects of his educational activity which are likely to lead to the greatest improvements in that activity. The improvements in how much he learns and is able to use should be well worth the investment in evaluation. For the learner, educational evaluation is the continuing process used to make judgments based on evidence about the effectiveness of his continuing education effort--in ways that encourage and facilitate the use of the results for the improvement of that educational effort [20]. Most of this evaluation the learner can and should do for himself. At some points, he will benefit greatly from a more objective contribution by others.

Listed below are eighteen steps that a facilitator of adult learning might follow so that both facilitator and learner can obtain a comprehensive overview of a learning episode.

1. Describe expected inputs (people, time, materials).
2. Describe actual inputs. What were the inputs of time, people, materials, money, and other educational resources that were actually used during the educational activity? (For some episodes, pretest results can indicate what the learner knew about the topic at the beginning of the episode.)
3. Describe external standards related to inputs. What inputs do peers allocate to similar types of continuing education efforts? What inputs are recommended by experts?
4. Compare expected with actual inputs. Did the learner's plans and intentions work out as expected? Where were the major gaps between expectation and actuality?
5. Compare the internal gaps between expected and actual inputs with external standards regarding inputs to comparable educational efforts. Is there information available on comparable activities to use as standards to interpret personal experience? If so,

how does the learner's experience compare?

6. Describe expected process. In what ways does the learner intend to interact with learning materials, other people, and the other educational resources in order to achieve his educational objectives?
7. Describe actual process. What were the learning activities and related procedures that actually occurred?
8. Describe external standards related to the learning process. What do peers do when they engage in similar learning activities? What processes are recommended by experts?
9. Compare expected with actual processes. Did the learning activities and related activities take place as expected? What gaps were there?
10. Compare the internal gaps between expected and actual processes with external standards regarding processes in comparable educational efforts.
11. Describe expected outcomes. What does the learner expect to have result from the educational activity? What are his educational objectives?
12. Describe actual outcomes. What are the behavioral changes for the learner and other results that actually occur? How much did the learner actually achieve?
13. Describe external standards related to educational outcomes. What do peers typically learn as a result of similar educational activities? What outcomes are recommended by experts?
14. Compare expected with actual outcomes. Did the learner achieve his educational objectives to the extent to which he intended?
15. Compare the internal gaps between expected and actual outcomes with external standards regarding outcomes from comparable educational efforts.
16. Select aspects for more intensive evaluation. The facilitator should review the descriptive and judgmental information that he has summarized for each of the preceding fifteen steps. At which points are there the greatest opportunities to better understand and improve aspects of the educational program?
17. Conduct intensive evaluation. All of the procedures that have been developed for educational evaluation are available to the facilitator who tries to improve the program by finding out why the selected aspects of his educational activity function as they do.
18. Use results for improvement of educational effort. One of the points at which the learner can and must assume the primary responsibility for educational evaluation is in the use of conclusions.

The amount of time that a facilitator of learning will spend on such a series of evaluation steps, especially the first fifteen that provide a comprehensive overview of a learning episode, will vary with the amount of anticipated benefit. The first fifteen steps can be accomplished in less than an hour. Often, more time is spent on obtaining an overview of a series of episodes. This process can be rapid and useful to the extent to which the facilitator of learning has placed information about the descriptive steps (1, 2, 3, 6, 7, 8, 11, 12, 13) in a folder at various times during the planning and conducting of the learning episode. He or she is then able to read through the descriptions for each step, and prepare a brief summary for each step which may also include pertinent information which was known but omitted. The facilitator can then shift from a descriptive to a judgmental mode and accomplish the comparison steps (4, 5, 9, 10, 14, 15). Not only does such a comprehensive overview of a learning episode provide a good sense of how well it worked, it is also in a form that is well suited to use of the conclusions for planning to improve the next similar learning episode.

Adult learners need to know how they are progressing. The conclusion from the series of evaluation steps can help to provide the desired knowledge of results. This is especially so for the comparison steps dealing with learning process (9, 10) and with learning outcomes (14, 15). A learning facilitator can assist adult learners to reflect on their own experience, to consider information about excellent performance as reflected in role models and external standards, and to suggest ways in which they could proceed more effectively in the future.

Other people besides the learner and a facilitator of learning are typically interested in the effectiveness of a series of learning episodes. Examples include administrators of the continuing education program, members of the policy board of the sponsoring organization, and representatives of a co-sponsoring group. These other people are also audiences for evaluation reports. When the program evaluation activity is being planned, the facilitator should decide which of these other people constitute audiences that should receive some report based on program evaluation. Those who are associated with a series of learning episodes can provide information about expectations if not descriptions of actual program functioning. When interpreting evaluation findings and preparing reports, the facilitator should consider the type and the form of the information that will make the conclusions most understandable to the persons who are to use them to improve the continuing education program.

The three concluding steps (16, 17, 18) may also vary greatly in the amount of time that is devoted to them in a specific instance. A facilitator of learning should be selective in focusing the intensive evaluation on those aspects of the series of learning episodes where opportunities for program improvement are the greatest. The use of an anonymous inventory at the start of an educational program can help learner and facilitator alike to identify the learner's current understanding of a topic, and such diagnoses can continue periodically throughout the series of learning episodes. A simple one or two page opinionnaire can be completed by learners and summarized as a basis for program modifications. Provision of an opportunity for learners to try out what they have learned in either actual or simulated tasks can also serve evaluation purposes well. Some problems related to program functioning are best evaluated by an observer who makes notes on the way in which the program proceeds and on suggestions for improvement. When used selectively to bring about specific program improvements, such evaluation procedures contribute to both program vitality and greater learner progress.

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VI. WHAT RESEARCH SAYS ABOUT ADULT LEARNING POTENTIAL AND TEACHING OLDER ADULTS

Howard McClusky

When I taught courses in adult education about fifteen years ago we were undecided as to whether or not to give much attention to adult learning abilities. It seemed presumptuous to do so because the very fact that we had a course implied that we believed in a person's ability to learn; since we are acting as if he can learn, why do we spend so much time talking about it and proving what in effect we are actually demonstrating? But the more I observe and think about it, the more I am convinced that there is still a lingering myth concerning the adult's inability to learn -- and especially about the question as to whether an older person can learn. I am proceeding on the assumption that this myth is sufficiently with us as a societal factor (and that the anxiety that develops in the lifetime of the individual is sufficiently with the people in a private way) to justify trying to build as solid a ground as possible for believing in the adult potential as indicated by my title.

Why the lingering myth? Well, we have seen little children with great capacity to absorb their environment. Their curiosity, their ability to explore, and their ability to learn are impressive. We are also reminded of the fact that, because of the apparatus of elementary, secondary and higher education, the basic learning in a society goes on in the years from six to twenty-two. This is what the administrative and programmatic structures of the society say to us -- that childhood and youth are the golden years for learning. This is one reason that the myth probably persists.

I am teaching a class in educational gerontology to persons ranging in age from twenty-two to fifty-five. I taught it last year to a very fine group, a fascinating group, attracting people from a diversity of disciplines. And I will always have somebody -- I have one now, a person forty-five years of age, in a key administrative job on the university staff -- who has gone back to school and will say to me something like, "My son, twenty-five years of age, said, 'Mother, what are you going to school for?'" It is not as if he had any doubt about her ability, but this is not what forty-five-year-old women do. One told me, "When I came back to school for the first time, I wondered what I could learn, it took me about a half year to re-enter the system, so to speak -- to learn a new vocabulary and to regain confidence in my ability to learn." So, in spite of the fact that we are demonstrating constantly in the field of adult education that older people can learn, there is a lingering doubt about the validity of this fact.

Now, let me detail a historical approach to our argument. I have lived some of the events that we shall consider. I took my Ph.D. in psychology and educational psychology, with a minor in sociology, at the University of Chicago at a time when the testing movement was coming into its heyday. The first time that the psychologists indicated interest in age differences in intelligence was embodied in the famous Binet Scale. Then Terman revised the Binet Scale for the American audience and called it the Stanford-Binet Scale. It's the classic instrument which produced the IQ. At that time, the highest mental age the testers were willing to concede was sixteen; and if you were a very superior adult, you might achieve a mental age of eighteen. They were not so much concerned then about aging but by implication they were saying, "This is the limit chronologically, if you are normal, for growth."

We were not so much interested in adult education then. Along came Thorndike's famous study published in 1928 which was the first bona fide effort to get at the adult's learning ability [14]. He administered learning tasks to a great number of graduate students and came up with the conclusion that learning ability peaks at age twenty-two and gradually declines thereafter. Historically, it is interesting to note that this was cause for great celebration. This investigation was subsidized by the American Association for Adult Education, with Carnegie funds, about two or three years after the Association was founded. Thorndike, the great psychologist, had said, "Look my friends, I have proven that adults can learn." And instead of ages sixteen or eighteen being the peak, age twenty-two was now regarded as the peak. What astonishes me, however, is that everybody was so excited about it. I think that this very excitement indicated some lingering doubt in their minds. They overlooked, however, the implications of Thorndike's saying that after the peak, ability seems to decline about one percent per year; for if you kept proceeding long enough, after age twenty-two, you wouldn't have much ability left by the time you reached eighty.

Then along came a study by Conrad and Jones, using the Army-Alpha test (which was developed during World War I). They applied it to a wide-ranging cross-section of people in New England, starting with age ten up through age sixty. And again, the Conrad and Jones study, based upon the Army-Alpha test, showed pretty much the kind of a curve that Thorndike found -- a rise to about age twenty-two, with a decline, not as sharp, holding up much better than Thorndike's curve -- but still declining to about age sixty [5].

Miles came along, about 1931, and found the same thing [9]; and Wechsler, who developed the famous Wechsler Adult Intelligence Scale, reached about the same conclusion [15]. So by that time, the picture of ability of adults to learn was pretty well established, namely that intelligence (defined as the ability to learn) peaks between the ages of twenty and twenty-four, and declines slightly thereafter. Most studies stopped at about age fifty or sixty.

In the meantime, some investigators began to raise doubts about this picture. The most famous doubter, and the person who had the biggest clout academically, was Irving Lorge. Lorge said that the trouble with the Thorndike curve is that it is based upon tests that stress and emphasize speed of response. And he said, of course, that older people do not respond as rapidly as younger persons. Practically all research indicates that adults tend to decline in the speed of reaction. This is generally accepted. But Lorge came along and devised procedures to prove that, with tests of power of learning (with no speed factor involved) there is no decline. So Lorge's studies began to cast some doubt on the Thorndike, Miles, and Wechsler picture [7]. He said in effect, "Gentlemen, you are not portraying a decline in mental ability, or mental power. You are revealing a decline in the speed of reaction; the mental power is still there."

About this time, new kinds of data began to appear -- what we call the longitudinal data -- the data that are based upon measures of the same person after successive intervals of time. The first studies were based upon cross-sectional data. That is, they were derived from tests of different people at different stages of time. Thus there is a distinction here between age change and age difference. The first studies of Thorndike, Miles and Wechsler were basically studies of age differences, but not studies of change that occurs in the same person over time.

Now, one of the first longitudinal studies was conducted by Owens at the University of Iowa. He discovered a bundle of Army-Alpha tests that were about to be thrown away. (They had been given to a group of Iowa students at nineteen or twenty years of age.) Owens was curious to see how many of those persons he could find for further study. He located a very large number of them and administered the same test to these people after an interval of thirty years [12].

Now, if the Wechsler, Thorndike, Miles, and Conrad picture of intelligence were true, then Owens, on his thirty-year repeat, should have found a very substantial decline in performance. But he found no decline. He found a disparity -- that some persons taking the test were better on the verbal tests and some were better on the performance tests. But basically, it averaged out to be about the same. It occurred to him to try this again, and he was able to get most of them ten years later, when they were sixty. And he found at age sixty that they were doing about as well as they did at age fifty, (and somewhat better than they did at age nineteen or twenty). So this began to cast doubt on the picture that had been developed as a result of the cross-sectional studies. We began to criticize the cross-sectional studies on other grounds. We began to suspect that they were probably contaminated not only because they stressed speed, but because they were biased in favor of youth. The content of the tests favored young people. It also favored young people who had been in the practice of taking tests as compared to people who had been out of practice.

Now, most important, some investigators said that perhaps we were not measuring ability, but level of formal schooling. It is well known that the older generation has had less formal schooling than the younger generation. Thus it was found that if we plot a curve for the successive levels of formal education, we will produce one closely resembling the curves of rise and decline of the cross-sectional studies.

But the exciting recent development is the discovery of evidence for the fact that if people in the later years seem to be not as good as those of the earlier years, this is due not only to the level of formal education that they have had, but to the character of the environment in which they lived in the formative years.

Kastenbaum has observed, "I could give a test to people of ages thirty and forty and then I could give the same test to people of fifty and sixty.

I would find in the case of the people of ages fifty to sixty that they speak Italian. My conclusion therefore is, that the older you get, the more likely you are to speak Italian." This is another way of saying that when we reach some ages, we are talking about a different kind of person: a person that has grown up in a different kind of environment, that has had different kinds of experiences.

So the trend today is to say that what has looked like a decline in ability is a reflection of differences between generations, and not an actual decline in abilities. In the research design that gave rise to these results Baltes and Schaie combined both the cross-sectional and the longitudinal procedures. It involved testing people, let's say at ages twenty, thirty, forty, fifty, sixty, and seventy, and then testing the same people ten years later (the actual interval was seven years). Now, if the first measurement was a true measure, of the real change and not differences, then the score that the thirty-year-old made on the first measurement, should be the score that the twenty-year-old should have made when he became thirty. In other words, if the cross-sectional data were a true representation of the change, but not the difference, then we should be able to predict what would happen to the twenty-year-old when he becomes thirty, the thirty-year-old when he becomes forty, and so on -- on the theory that ten years later, we would have the same score as the other people had ten years earlier.

When the researchers constructed the chart of the cross-sectional data, at successive ages, they revealed an early peaking followed by a decline. But when they charted the data on repeated measures, they did not find a decline -- except in the speed dimension of motor performance. On three other crucial dimensions, performance holds up and continues at a high level. So the trend of research today confirms that we had received a misleading picture of adult potential from the cross-sectional research design [1; 2].

Let me turn to a very interesting study of the middle years. For some time now we have had successive measures of people who have grown up in child research centers like California, Minnesota, Michigan, and Massachusetts -- repeated measures of the same people. A thirty-year followup study reported in 1971 in Developmental Psychology states, paraphrasing the abstract: Forty-eight subjects, between pre-school and middle age, were tested with the Stanford-Binet in 1931, '41, '56, and '69. They were also tested with the Wechsler Adult Intelligence Scale, in '56 and '69. The correlations between the

Stanford-Binet administered at pre-school age in 1931 and the Stanford-Binet and the Wechsler in middle age (1969) were .41 and .39. This is between the first and the last tests. The first and the last were below .50 correlation. The corresponding correlations between the Stanford-Binet administered in 1956 and 1969 (when they are much older) was .77 [6].

In other words, there was a much greater difference between the results of administration in pre-school and the adult years than there was between the two measurements in the adult years. And the correlation between the 1956 Wechsler and the 1969 Wechsler was .73. Comparison of '56 and '69 IQ scores on both the Stanford-Binet and the Wechsler indicated several IQ points of mental growth between the ages of thirty and forty-four--the period when the earlier researchers said intelligence is supposed to decline.

The Later Years

In the first place, there are wide individual differences in the later years. If there is any fact that seems amply confirmed, it is that as the years pass, people become more and more differentiated. The variation among people increases as well as the individuation within the person. The adult becomes a very special person the longer he lives.

As an example of differentiation within the individual, let us consider the distinction between crystallized intelligence and fluid intelligence. Crystallized intelligence seems to be based upon experience. Fluid intelligence is based largely on primary biological forces. Cattell claims that the "fluid" curve tends to shape up pretty much like the old cross-sectional one -- peaking in the late twenties, and then probably declining. He reports that the curve for crystallized intelligence goes up and shows no decline at all-- rather, it rises to the end of life. We are beginning to suspect, then, that when we think about the later years, we are thinking of many dimensions, that there are some things at which older people excel, while there are other things, where because of disuse and poor motivation, their performance falters [4].

Let us look at another result from current research. In the later years intelligence is highly correlated with physical condition. In general, people with lower blood pressure seem to do better than people with higher blood pressure. It is also interesting to note that those people who are exercising and keeping themselves physically fit seem to do better on mental tests than those who are extremely sedentary. In fact, some studies show that the process of deterioration can be reversed by physical exercise. So, we suspect that health and fitness have a lot to do with a person's maintaining his abilities.

There has also been some very interesting research on what a rapid decline in the physiological sub-structure does to the mental process. Some studies of people past sixty show a so-called terminal drop in cognitive ability, anywhere from six months to a year before death. This drop apparently appears before its physical manifestation. It seems to be predictive of some process of deterioration that is going on in the body. Therefore, there is growing speculation that some of the poorer scores in the cross-sectional studies of people from sixty-five to seventy-five may be due to the fact that there are more people of that age who are highly vulnerable physiologically. If somehow, the vulnerable could be separated out, with the healthy remaining, curves of mental performance would be different. In fact, some interesting research in Washington a few years ago focused on extremely healthy older people. It was found that these persons did better than younger people on some tests and not so well on others, but in general they performed at a high level well into their eighties.

Where does this leave us? In my judgment, it leaves us with the strong belief that there is a potential there, but we have been slow in admitting it -- that the primary capacity to learn is there, possibly in a latent form. But it is there, and it is the task of adult education to arrange the circumstances and the stimulation in order that this potential may be actualized.

I have come into the field of gerontology from the domain of adult education. The gerontological movement is geared pretty much to the protection of older people and the production of a floor of support, so that older people can live in dignity and self-respect and as independently as possible. This is as it should be. But the educational approach is a little different. As educators, we assume that the client is capable of improvement. For example, special education is committed to helping the deprived and handicapped to learn. And even though the person is a slow learner, has a low IQ, or a reading disability, we proceed on the assumption that he is capable of an educational response that will improve his condition.

In the field of adult education, I have come upon case after case of people from sixty-five to one hundred-plus who are learning and coping well. I remember working down in Appalachia and hearing about a black lady, one hundred years of age, who was learning to read for the first time. I gave a speech over at Ypsilanti, Michigan, to the adult basic education classes recently, and the chairman of the program told me that one of her favorite students was eighty-two when he passed his GED test and is coming back to take post-graduate work. As we saw the people leave the room, she pointed to person after person over seventy years of age. We see examples of this constantly.

So, what I am saying is that if we approach the field of gerontology from an educational standpoint, we constantly see evidence of the fact that older people are learning and can renew their faith in their ability to learn. As a consequence, we must find ways to help people rediscover, reinvigorate and reactivate their latent interests and talents they never thought they had. Grandma Moses, perhaps an extreme example, began to paint at age seventy-five and did some of her best painting after age one hundred. When I taught at the University of Saskatchewan recently, I ran across the trail of a very famous landscape painter named Robert Hurley, who didn't know he had this ability until he was sixty years old. He began drawing pictures on the backs of old sheets of paper. He was custodian in one of the university buildings at Saskatoon. People urged him to create. He has produced some beautiful pictures. Colonel Sanders, of the famous fried chicken empire, was out of work in his mid-sixties; he is a multi-millionaire now in his mid-eighties.

What is it that has stood in the way of uncovering the adult potential, and what is it on the other hand that has facilitated those who have continued to develop? We have support for the point that experience is a factor. But experience per se is no guarantee of growth. On the other hand, experience can be the very stuff of and stimulus to growth. Theoretically, the person that has the most significant experience in his "bank" (if he has the right approach, is flexible and open-minded) is capable of greater creativity and capacity for generalization for the simple reason that he has more stuff to relate to and put together. The process proceeds somewhat as follows:

We put two particulars together and come to a generalization, and apply it to a new particular. If we have more experience, we have more things to relate to, and if our experience is of a high conceptual order and we relate two concepts to one another, the chances of achieving some kind of a relationship of significance is compounded — theoretically. If a person's learning ability, habits and skills are kept fresh, experience properly invested and properly cultured can be a substantial source of strength.

Take Maslow's theory of self-actualization. He says that a person probably can't be actualized until he is older. According to Erickson's theory of growth and successive stages, we do not attain maturity until the last stage of life. So I am saying that one of the great frontiers of adult education is to create a kind of learning environment that is uniquely appropriate to older people -- uniquely appropriate to their needs, their motivation and pattern of life. To do this, we must create new models of what older persons can do educationally -- models with which they can identify. We have the example of the Inter-generational College, Fairhaven College in Washington. There we have people sixty-five years and older occupying a dormitory along with students of college age. And the reports of how the young people respond to the older learners, and how they get along with one another, are truly encouraging.

We have in Ann Arbor now a fascinating experiment in inter-generational education. In this program retirees serve as teacher aides and assist elementary school teachers to teach skills in, for example, quilt-making, lace-making, cabinetmaking, and woodworking. The youngsters love it and the director reports that exciting things have happened. Not only do the children learn new skills, but what it does for the older people is perhaps more important. What seems to be an apathetic, declining generation is a reflection of a dull, unchallenging, unrewarding environment, and not a reflection of ability.

Just a few remarks concerning strategies. In the first place, an educational program for older people must tap some deep interest and need. Moreover it must restore confidence in their ability to learn. It should also be non-competitive. There should be plenty of room for fellowship. And considerable counseling will be needed, in order to assist learners to relate instruction to personal needs.

As time goes on we will probably develop a curriculum that is specially adapted to older learners. The fascinating thing is that many older people are able to come back and compete with younger people and middle-aged people on equal terms. We have many examples of that. Generally speaking, however, good strategy is to create an environment that is supportive, and to learn techniques that can reinforce learning. For example, we should be very clear as to what we expect them to learn. We should give them techniques of imagination, combining both auditory and visual imagery. Self-pacing is another important procedure. We should allow the older person to pace himself and learn in his own way and in his own time, without too much pressure.

So little by little we have begun to be aware of those things that have stood in the way of optimum performance, and we are learning ways to facilitate and overcome the discrepancies that have blocked people in the past. We are gradually learning how to work with older persons in ways that make maximum use of their strengths. Why is all this important? One-tenth of the population now is sixty-five or over. With the trend to earlier retirement, more people are destined to live in the retired years. And those in the later years are going to be healthier, and have higher levels of education and of expectation. Society must not allow this group to decline into an unproductive, inactive, docile condition. Society needs not only to protect them in order that they can maintain their dignity, but society is obligated to give them an opportunity to demonstrate their potential as resources, positive resources that can be reinvested for societal well being. We know now that the ability is there. If we let that ability go to seed and deteriorate into a sense of frustration and apathy so that all that they do is sit around in the sun waiting for the end . . . this is just no way for society to behave.

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